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PROCEEDINGS OF THE SEVENTEENTH EDUCATIONAL CONFERENCE OF THE ACADEMIES AND HIGH SCHOOLS AFFILIATING OR CO-OPERATING WITH THE UNIVERSITY OF CHICAGO.

EXECUTIVE SESSION OF DEANS AND PRINCIPALS.

The seventeenth educational conference of the academies and high schools affiliating or co-operating with the University of Chicago opened Friday, November 13, with the executive session of deans and principals with the Board of Affiliations of the University. The following topics were presented and discussed:

1. Report of the committee appointed at the last meeting upon the increase of credits for admission to the University in English offered by the secondary schools.

2. Report of the committee appointed to consider the influence of fraternities in secondary schools.

3. The system of student advisers as an administrative device in high schools, presented for discussion.

4. The preliminary education which should be completed by the student today who contemplates entering a professional school to prepare for the practice of a profession, especially that of medicine or law.

INCREASED CREDIT IN ENGLISH.

The report of the committee appointed to consider the question of giving additional credit to English in the entrance requirements of the University will be found in the report of the Departmental Conference in English.

FRATERNITIES IN SECONDARY SCHOOLS.

The committee invited to consider the influence of fraternities in secondary schools begs to report that the time has been too short to collate the experience of the high schools and academies in this respect. The committee appreciates the importance of the subject for its consideration, and deems it worthy of its most careful study. To this end, it has thought it unwise to venture a report at this time, but rather to suggest that a list of questions relative to the presence and influence of these organizations in the leading high schools and academies be prepared for answer, that its conclusions may be formed from as comprehensive a view of the subject as possible.

The character of the investigation proposed may be gathered from the following letter and list of questions that have been prepared tentatively:

DEAR SIR: The accompanying questions are sent by the committee appointed by President William R. Harper of the University of Chicago to report upon the influence of fraternities in secondary schools, to the conference of academies and high schools affiliated or co-operating with the University of Chicago. It is the aim of this committee to collate the experience of the leading academies and high schools; to make as definite a statement as possible of this particular phase of the social life in our secondary schools; to note the advantages or disadvantages accruing from the standpoint both of scholarship and of discipline; to form some conclusions whether the fraternity or sorority shall be considered a condition to be welcomed, to be met by remedial measures where necessary, an evil to be dealt with strenuously, or a matter entirely for the consideration of the parents, and out of the jurisdiction of the school authorities.

Therefore it is asked that principals will give their assistance in fully answering these questions, thus enabling the committee to reach a conclusion based upon the actual experience of high schools and academies.

May we ask you to name a prominent member of a fraternity or a sorority in your school who would be willing to give this committee the fraternity view of this subject?

Kindly answer in full upon this blank the accompanying questions, and return same to the chairman of the committee at your earliest convenience:

1. Are there fraternities or sororities in your school? How many of each?

2. Are these organizations under the supervision of the faculty or recognized in any way by the school authorities? If under faculty supervision, what regulations are enforced? Do the fraternities or sororities admit faculty members?

3. Do these fraternities or sororities occupy rooms in the school building? Do they maintain chapter houses or rooms outside of the school? Or are the meetings held at the homes of the members from time to time without fraternity or sorority rooms? Are these fraternities or sororities connected with national organizations? Have these organizations, to your knowledge, any rules governing the admission of members and the character of their social life?

4. Are the members of fraternities or sororities of low, average, or high scholarship? Where the scholarship is low or average, is it your opinion that it is caused by the fraternity or sorority life, or are there other reasons for scholarship status?

Can you cite any cases in your school where scholarship has been raised by the emulation of fraternity or sorority life?

5. Do these organizations influence the social life of the school? Do they cause greater discrimination than ordinary school friendships? Do they affect class organization or the organization of school dramatic, athletic, literary, and musical clubs?

6. Do you feel their influence in the discipline of the school?

7. Are the members of these fraternities and sororities pupils who are leaders in the social life of the school or district in which the school is situated?

8. Is there apparent a feeling of distrust and jealousy on the part of those not invited to join these fraternities or sororities?

9. If there is neither fraternity nor sorority in your school, are there club organizations of a social character without the secrecy of the fraternity? How are they managed? Are they under the supervision of the faculty? What are their tendencies?

10. What is the membership of your school? (Boys)... (Girls)... What is the aggregate membership of the fraternities or sororities? (Boys)... (Girls)...

11. Can you give the committee an idea of the expenses of the organization to the pupil for maintenance, banquets, conventions, etc.?

12. What course would you advise?

a) The abolition of these organizations in secondary schools?

b) Their continuance under faculty supervision?

c) Or their continuance as outside organizations not under school jurisdiction?

Are your objections the same for the organizations of girls as for organizations of boys?

The committee will welcome any suggestion as to matter of investigation or mode of procedure.

Present and concurring: Associate Professor Shepardson, the University of Chicago; Professor T. C. Burgess, Bradley Polytechnic Institute; Principal J. E. Armstrong, Englewood High School; and the chairman.

Absent: Principal B. U. Rannells, Cleveland (East) High School.

For the committee,

SPENCER R. SMITH.

SOUTH DIVISION HIGH SCHOOL,
Chicago.

STUDENT ADVISERS AS AN ADMINISTRATIVE DEVICE IN HIGH SCHOOLS.

SUPERINTENDENT M. A. WHITNEY,
Elgin.

The interpretation which I have made of the question assigned for discussion at this time is that of advisers for the students selected from among the teaching force of the high school, following somewhat the plan in vogue in many colleges. I shall speak briefly of the working of such a plan and

of the need of some arrangement of the kind in a large high school.

The plan I have in mind differs somewhat from the plan of special advisers for students in colleges, especially with reference to the work which the special adviser is to do, for the reason that the college deals with young men and young women, while the high school deals with boys and girls who are developing into young men and young women. Briefly, the plans I have in mind, and some of the work to be done, are somewhat as follows: a school of five hundred pupils, more or less, divided among twenty teachers; to each teacher are assigned twenty-five pupils, over whom she is to have a care. The objects of this arrangement are (1) to get into closer touch with a smaller number of pupils than it is possible for one teacher with larger numbers; (2) to influence these pupils both in respect to their own individual interests and with respect to the interests of the school. The success of the plan depends, of course, upon the skill of the teacher and the interest she takes in it.

A few of the things which the teacher is expected to do and care for in detail may be enumerated as follows: the health of the pupils; the amount of work they are doing, and of overwork; to suggest to the principal any desirable rearrangement of studies; to call on the pupils in case of illness, and manifest an interest in their welfare; to look after the reason for absence and failure, possibly in a more helpful and sympathetic way than is likely in the case of those who have the responsibility for greater numbers; to encourage pupils in every way to remain in school, and to remove as far as possible any obstacles in the way of their success; to secure an acquaintance with home conditions, on which school work so much depends, and an acquaintance with parents, on which the pupils' attitude toward the school so much depends. Nearly all the cases of serious trouble between teachers and pupils that I have known have been cases where the teachers were unacquainted with the parents.

Teachers can secure helpful information in regard to a small group of pupils, and use such information to the advantage of the pupils and other teachers by reporting to the latter such facts

as will assist them in better understanding the pupils. The teacher with the smaller number, with whom she is personally acquainted, strives by friendly advice to guide in out-of-school interests.

The need of such a device will be apparent to anyone acquainted with the conditions in the grades and in the high school. In the grades the children are under one, or at most two, teachers. These teachers are in close touch, by long personal acquaintance in many cases, with the parents and home conditions. In the grades the child is the important consideration. In the high school the teacher sees the pupil only once a day in the class-room, and then he is hurried away to another teacher. Each teacher is unfortunately a specialist, and often the child is of minor importance, while her specialty is exalted. In too many of our schools specialization has been carried so far that it has actually become what Hamilton W. Mabie calls "an organized tyranny through the curiously perverted view of life which it has developed in some minds."

Pupils on entering the high school, owing to the changed conditions, are apt to feel that their teachers lack interest in them, and soon they lose interest in their work. Many instances might be given where teachers have been able to influence pupils by showing an interest in their welfare. Pupils and parents often care more than we think for little attentions.

Another advantage of the plan is that it utilizes in this special way teachers who are not assigned to session-room work, and whose influence is often most valuable. The plan is not intended to interfere with, or usurp, any of the powers of the high-school principal, but to assist him and supplement the work which he does.

Some of the opinions of teachers in regard to the value and possibilities of the device may be of value: "In a few minutes' informal conversation with pupils outside of the class-room we can often learn more than we should otherwise learn in months. We are more likely to make opportunities for such conversation with pupils over whom we have a special care than we are if there is no such oversight." "Pupils appreciate having us con-

verse with them in a general way about all their work and their plans." "Pupils ought to feel that the work of other departments is as important as the work of our department, and every wise teacher will strive to impress this upon them." "Teachers can thus view the whole work of the pupils, and not one particular study, and often give valuable suggestions." "We can better study home conditions." "We can get closer to the pupils." We must not forget in our struggle for intellectuality that human beings long for sympathy. The teacher who trains only intellectually comes far short of educating. Cold-blooded intellectuality does not build character very fast. Young people need the sympathetic personal contact of a teacher. By bringing him into close sympathetic relations with a noble character, his ideals of nobility will become more real, and his character will grow and develop.

The same topic from another standpoint was discussed by Principal Louis J. Block, of the John Marshall High School:

We have had a Students' Council in the John Marshall High School. It was composed of teachers and members elected by the various classes. It had nothing to do with the maintenance of order or the management of the school. It discussed the interests of football, the student publications, the giving of public entertainments, and the best ways of expending such funds as accrued from time to time. I think that, on the whole, it has worked very well. It has displayed considerable wisdom in transacting such business as came before it; it has presented the school to the student from a new point of view; it has given him a sense of ownership which has led to a deepened responsibility; it has given him a gratification in being honored by an election to a sort of governing body. We have also had committees in charge of rooms, which have successfully done some of the work ordinarily undertaken by the teacher. These slight attempts in the direction of the so-called self-governing system are all the actual experience I have to bring to the discussion of this subject, but they have all tended to give a favorable view of the larger achievements of others.

The student being self-directive is to bring his self-direction into play in his relations with the school. We are in the age of democracy, and the spirit of the democratic movement is to manifest itself in the arrangement of the school. The student developing into maturity should early show those characteristics which belong to his full possession of himself. The military idea is repugnant to the institutions under which we live. The free man, self-governing, self-controlled, is the purpose of our endeavors, and the

youth should find in his environment the adequate reflection of what he is to become. He can learn to swim only by going into the water, and he can learn to be a free man only by being put into the enjoyment of his freedom.

Then again he is to become aware of what it is to be a citizen of the great republic. He is to become acquainted formally with the methods of citizenship, and eventually with the significance of the high state that awaits him. He is to learn that he lives not to himself alone, but that he is a part of a social body that calls for his best allegiance, and participation in whose career gives him the best that he can possibly attain. Everything that makes for good citizenship should be confirmed into habit as early and as strongly as may be, and he should come from the school with the consciousness of his obligation to the community already developed within him. He should recognize himself, not only as having an individual, but also as having a social life.

Again, there will grow out of participation in the school government an increased pride in the institution to which the student belongs, and a corresponding success in the work which he is doing. The effects upon scholarship are decided and encouraging. The discovery that the school is nothing foreign to him, but rather his best self operating on a larger scale, and doing in a wide way what he most wishes to do, stimulates the student in all directions. He learns to care for others; the assurance of his own rights makes him willing to assure the rights of all; and whatever transpires within his sphere he feels related to himself, and it becomes a matter of interest and responsibility to him. He sees with clearness the consequences of capricious and wayward conduct, the setting up of an individual as opposed to a social standard; and he emerges rapidly into his real manhood.

And again, a great burden is lifted from the teacher. The chaotic mass which confronted him, and which it is his business to mold with tact and energy into right and permanent forms, has taken a large share of the hardest work into its own hands, and proceeds to do that work in a better way than he can do it. It is now his business to watch and assist, and give the new impulses freedom and fair play. The way is cleared for adequate and uninterrupted instruction. In fact, the hard task of preparing the soil, of removing obstructions, of doing the deep plowing, has been lightly accomplished, and the rich soil is ready for the seed whence is to come the abundant harvest.

It must be conceded, I think, that, if all these fine results can be attained, the new system has considerable to say for itself. It is also reported that it has won many adherents, has spread far and wide, and made converts and conquests everywhere.

It would be interesting to get information from those who have been testing the self-governing plans. For this the present writer has had neither the time nor the facilities. The plan is, of course, not a wholly new one.

The plan has assumed varying forms. It has in some cases divided students into citizens and non-citizens, the latter being those who are unwilling to assume the responsibilities presented to them. These latter remain under

the direct control of the teacher, and might be the source, one would suppose, of many difficulties. In some cases an elaborate form of government has been introduced, modeled upon the government of our municipalities. There has been a great multiplication of officers, whose duties and functions in a school are not aggressively apparent. There has been a complicated machinery of elections which must in their actual pursuance take up a good deal of time and attention and forethought. Whether this would lead into a premature acquaintance with processes familiar enough in the great world, but hardly desirable in the small world of the school, is a question. Would the political tyrant, playing sad havoc with the democracy, make his appearance? Is there any danger of achieving a state of affairs which would require a Hull House, a Civic Federation, and a Municipal Voters' League to counteract its insolently dominating influences? One of the conspicuous high schools of this city has tried the plan and worked it out successfully. There will, in all probability, be many further developments of the idea, new experiments, and new applications. There is something singularly alluring about the spectacle of a large body of young people displaying the wisdom to manage their own concerns, to curb their vehement desires, to obey the call of the right. It is certainly something hopeful and inspiring to find them sufficiently in earnest to be trusted with their higher interests to the exclusion of those incitements which are ordinarily supposed to be too strong to be resisted without a long and a severe struggle.

Meanwhile one hears of less reassuring circumstances. In some cases the schools adopting the scheme have dropped it after a trial of considerable length, and the question recurs whether it is, after all, the best way of resolving the difficulties which it seeks to surmount. Is the practice of surveillance less disagreeable when managed by students than when undertaken by instructors? Moreover, we find institutions in which there is no visible government at all, and they seem to live and move with satisfactory ease and comfort. On the one side of the school is the home, with its perfect freedom and its willing participation of each in the work of all. How far can this spirit of easy and happy co-operation be carried into the broader activities of the houses of learning? Certainly in many ways a well-regulated school approximates more nearly in form and life to a well-regulated home than it does to a well-regulated state. The school perhaps has in reality an organization of its own, which it is the business of the educator to discover and apply. To impose upon it the complex machinery of the state seems a little like finding a certain form of government the very best, and then enforcing it upon the victim whether it fits or not. There may be such a danger as thrusting upon an unprepared constituency a splendor of democracy for which their stage of culture does not call with any convincing appeal. As we have already done this in the state political, are we ready to do this to the same rather alarming extent in the state pedagogical? Moreover, are we always sure that the end sought is attained? Does the so-called self-

governing system really always govern itself, or is the teacher in the background ever on the point of emerging into the full glare of publicity when the frequent occasion somewhat loudly demands? The school undoubtedly has a character of its own, an organization which is the genuine expression of its life, and in which the activities of its various functionaries, pupils, and teachers, are duly unified. We are on the road to serious error if we give it a form which is alien to it, and which impedes the movements of its limbs, and so makes it less able to accomplish what is expected of it.

Then again, confusion may arise from the double government; for, after all, the teacher cannot be kept totally in abeyance, and his wisdom must be called upon in all sorts of emergencies. In a laudatory account of a distinguished experiment in self-government, the observer notes that the teacher sent from the room a youth whose presence did not add to the elucidation of the subject under discussion. When inquiry was made why this should be necessary, or why the student-officer did not take the duty upon himself, the reply was made that the teachers controlled the rooms, but that the students were masters of the rest of the building. It would seem that this might lead to a commingling of church and state that would be as little conducive to healthful growth and activity as some sections of the gorgeous pageantry of history where the two have played their sanguinary parts.

Then government has two functions — the negative one of repression, and the positive one of development. There is the whole vast enginery by which society protects itself from the inroads of its own members upon its substance and life. The unmasking of hidden evils and the bringing to justice of offenders is a call imperative indeed, but in no wise agreeable. The helmeted upholder of the peace is idealized only with difficulty, and to throw this business upon students is a questionable proceeding, when we consider all that it implies. It is said that one difficulty of the scheme is that after a while it becomes less and less easy to find persons willing to take upon themselves the task of the detective and the executioner, and one can readily understand why this should be. However right it may be to give testimony on occasions against one's fellows, yet no one who has had to do it fails to realize what a mental and moral struggle it often involves. There seems to be no good reason why young people should be subjected to greater pressure in these directions than their elders are. Also the division of the students into citizens and non-citizens, as they participate or not in the plan, seems a peculiarly unfortunate device. The segregation of the sheep from the goats may more appropriately be left to that remote period when things as we now know them have ceased to be a part of the environing landscape.

Much rather it appears that we ought to call the student into co-operation with the positive function of government. I should prefer to ask him to hear a recitation which he has carefully prepared, or invite him to a discussion of ways and means for increasing the efficiency of the school. Now, I do not wish to be understood as opposing the movement, if there be such a move-

ment, of self-government in schools. Every school ought to be self-governing in the high sense that all its members are allegiant to the ideal which the school expresses. There must also be organization to bring this about, but it should be organization consonant to the nature of the school, and not forced upon it from something excellent without. The school should be an ideal community in which all are free, in which all co-operate, in which all recognize the excellent as their leader, in whose organization all have their equal share, and in which all the machinery of government has vanished in a genuine and solid unanimity of purpose.

THE PRELIMINARY EDUCATION WHICH SHOULD BE COMPLETED BY THE STUDENT WHO CONTEMPLATES ENTERING A PROFESSIONAL SCHOOL.

DEAN J. M. DODSON,
Chicago.

This subject relates to the preliminary education which should be completed by every person today who contemplates entering a professional school to prepare for the practice of a profession, especially that of medicine or law. It is of great importance, because it involves the future standing of these professions in this country, and the welfare of a large number of young men who are to enter them. It is desirable that the members of this association should be acquainted with the facts, because they, more than other persons, come into contact with young men and women of high-school age, at which time in many, if not in most cases, these young people decide upon their future vocations. The present time is opportune, because the conditions obtaining in the practice of medicine and of law have only recently become such as to warrant the uniform exaction of a much higher requirement than would heretofore have been reasonable or possible. As I am more directly interested in the department of medicine, and as Professor Hall is to say something in reference to preparation for the study of law, I shall confine what I have to say entirely to the question of a preparatory education for medical work.

I would emphasize first that the subject proposed for discussion is not that of the *ideal* preparation for the study of medicine, but the minimum education with which any man can afford

to begin his professional study. As to the ideal requirement, there would be little difference of opinion among educated men that this should consist of a college course, or a considerable part thereof. Opinions would differ as to the specific subjects which this course should include, and, perhaps, also as to the number of years it should cover; but there would be little difference as to the main fact.

The university professional school may assume either one of two positions in regard to this matter. It may demand admission requirements far in excess of those which it would be reasonable to exact of all, and frankly say that it proposes to prepare men only for the highest positions in the profession, leaving to schools of inferior character the education of the rank and file; or it may make its minimum requirements such as might fairly and justly be exacted of every person preparing to practice law or medicine under the prevailing conditions, while, at the same time, it provides a more thorough preparatory course for those who will accept the advice that they should take it. The first position is a perfectly legitimate attitude for a particular university to assume, if it chooses to do so, and in the case of one medical school at least in this country the assumption of this position has been of distinct service in raising the standard of medical education. It seems to me, however, that it would be extremely unfortunate if all university medical schools were to adopt this policy and deliberately to relegate the teaching of the large majority of physicians to schools of inferior grade. If the time has arrived when there can reasonably be demanded from any and every medical student a minimum requirement which is sufficiently high to comport with the university ideas, then the university medical school should seek to enroll among its pupils all students who can comply with those ideals without regard to their possible or prospective ultimate rank in the profession.

It is of special importance, moreover, that the general educational standard of the whole medical profession in this country be raised as soon and as rapidly as possible, to the end that the profession may exercise a wider and stronger influence in the

community. It is an interesting fact that the remarkable progress which has been made in the medical sciences in recent years, particularly in our knowledge of the causes of diseases, has been followed by very little advance in curative measures, that is to say, of our ability to arrest a disease in the individual after it has once begun. The practical good that has come from this recent progress lies almost wholly in our ability to prevent disease rather than to cure it. If the possibilities of such prevention are to be realized, it must be through the education of the community and the enactment of legislation along the lines of community hygiene and sanitation. The ability of the profession thus to educate the public and to secure such legislation as this depends largely on the general educational standard of its members, and, by virtue of this, their influence in the community.

Whatever be the requirements of this or that medical school, the question which concerns this audience is this: What advice should be given a boy who has decided to become a physician? Shall he be told emphatically that he must secure some considerable part of a college course before beginning his study of medicine, if he is to have any reasonable prospect of success? If it is true that a young man taking up the study of medicine with no more than a high-school preparation is bound to be very seriously handicapped in his future career, if he is to meet the keen, sharp competition of a large and increasing number of physicians who have had a thorough collegiate training, then it is important that he should be fully informed in regard to the facts before it is too late. Few persons, even physicians, realize how enormous and rapid have been the changes in the last ten or even five years. A few facts will serve to illustrate this. There were in the United States 116 medical schools in 1890 and 154 in 1902—an increase of about 50 per cent. in twelve years. The number of medical students has nearly doubled in the same time, having been about 15,000 in 1890 and 27,816 in 1902–3. The total number of graduates was 4,454 in 1890 and 5,698 in 1903. The total number of physicians in the United States at the present time is about 150,000—a ratio of 1 to between 500 and 600 of

the population; nearly double the ratio existing in any other country of the world. As nearly as can be estimated, while there were about 5,700 graduates from the medical schools in 1903, less than 4,000 would have sufficed to meet the demand created by death and disability and the increase of population. In other words, nearly 2,000 physicians were graduated from medical schools in a single year in excess of the number really needed. If this ratio of increase be maintained, it is clear that in ten years we shall have 15,000 or 20,000 physicians in this country in excess of the demand. This is a very radical change from the conditions which obtained ten years ago; but even these statistics do not convey an adequate idea of the change in the conditions of medical practice. At that time a diploma from any reputable medical college not only secured a license to practice in almost every state in the Union, but the rapid growth of the country and the continual opening up of new territory made it possible for any young man with such a diploma to find a location where he could at least earn a living. To find such a location has already become a difficult task, and it is rapidly becoming more so. Competition has become very keen, not in the city alone, but even in the more remote country places. While a thorough college training is by no means a guarantee of success, nor does the lack of it of necessity mean failure, it requires no prophet to foresee that, with rare exceptions, the successful men of the future in the medical profession will be those who are best prepared, by a broad and thorough fundamental education.

The suggestion will perhaps be made that the medical schools and the examining boards of health should be left to settle this matter by increasing the requirements for admission to the medical schools and for the procuring of a license to practice. Doubtless these agencies might bring about desired results in time, but it will be a slow process, for unfortunately a large number of medical schools are not actuated by the highest motives; and meanwhile many young men are entering the profession of medicine inadequately prepared and foredoomed to almost certain failure. Most students who enter a medical school too early do

so through lack of knowledge of the importance of a thorough preparation. Here at the University we have found in our experience with prospective medical students that, if we can get in touch with the high-school boy before he comes to the city to take up the study of medicine, either by correspondence or, better, in person, he can in many cases be convinced of the importance of taking the prescribed college work before he takes up his medical study. If, on the contrary, he comes to the city, often from a long distance, expecting to enter the medical school at once, and finds, as he does, medical schools ready to receive him with a good deal less than an adequate high-school education, it is extremely difficult to turn him from his purpose to enter upon the medical work at once. It is here desired to emphasize the statement that every young man is almost certain to meet disappointment and failure, if he begins the study of medicine today without adequate preliminary education. The high-school course does not afford this. He should have, in addition, as a very minimum, two years of collegiate work, such as is provided in the combined course for the bachelor's and the medical degrees, offered at this University and at several other universities in this country. It is of vital interest to the profession of medicine, to the community, to the better class of medical schools, and above all to the prospective medical students themselves, that this information be as widely disseminated and as forcibly impressed as possible. Believing, as we do, that it is the function of the university, not simply to hold its doors open to those who may choose to come to it, but actively and energetically to promote the education and elevation of the community at large by every means within its power, we believe it to be its duty to disseminate knowledge of the facts to which I have referred, as widely as may be. To that end, we ask the co-operation of the members of this association, who are so peculiarly in a position to reach the young men who most need to know these facts in reference to medical education.

THE GENERAL CONFERENCE.

The general conference in Leon Mandel Hall was called to order Saturday, November 14, 1903, by President W. R. Harper, who announced that the topic for discussion was the general problem presented at the last general conference, viz., a proposition

1. To connect the work of the eighth grade of the elementary school with that of the secondary school.

2. To extend the work of the secondary school to include the first two years of college work.

3. To reduce the work of the seven years thus grouped together to six years.

4. To make it possible for the best class of students to do the work in five years.

At the last general conference this proposition was referred to a commission of twenty-one, which again was divided into three committees of seven each. These committees were to consider the matter of shortening the college course from a relative standpoint of the college, the secondary school, and the elementary school.

Superintendent F. L. Soldan, of St. Louis, reported for the Committee on Elementary Schools as follows:

The Committee on Elementary Schools has limited its consideration to the question of how such change would affect the elementary school. The change required of the latter would be from an eight-year course to one of seven years.

The committee, in trying to state its views, wishes to describe briefly the standpoint from which it has considered the question.

1. It holds it to be self-evident that the interests of the elementary school, considered by themselves, should be the first and chief consideration.

2. This standpoint implies that the interests of college education, while a most important matter, are considered second to the elementary-school interests, apart from all other considerations.

3. When viewed from the college standpoint, or from the standpoint of the educator who has a survey of the whole field, the interests of elementary school, high school, and college are a unit, and the adjustment of elementary education to the demands of the high school and college becomes a necessary and indispensable consideration. Each college student represents in him-

self the interests of the elementary school, the high school, and the college. On the other hand, the elementary pupil is not necessarily affected either now or in future by the interests of high school and college. There is apparently a divergence of interests.

4. From the standpoint of elementary education, or from that of the public good, such adjustment of the elementary school to the college or high school is not the chief consideration. The principal condition, from the standpoint of public education, is to make the common schools a source of thorough preparation for a good life and intelligent citizenship. The scholastic view, namely, that the elementary school has for its chief purpose the preparation of children for the high school, cannot be the view which broad public considerations sanction. The purpose of elementary education lies within itself, and is not determined by ulterior considerations.

5. It is therefore necessary to show that articulation with secondary schools or colleges is beneficial to the general interests of the elementary school. No adjustment to higher education can be approved if elementary education is thereby stinted or reduced.

6. There are evidently two main questions to be considered when the possibility of a shorter course for the elementary school is discussed: (*a*) Is such a change advisable, from the standpoint of the elementary school? (*b*) Is such adjustment feasible, from the standpoint of the teacher and from the standpoint of public opinion? In other words, is the reduction of the present course of eight years to seven of use or benefit to the elementary school itself? And if it should be found that it is practicable, the question again arises: In what way can it be carried out?

7. There are reasons, outside of those which result from the desire to adjust the curriculum to the college, which make the shortening of the course of the elementary school to seven years advisable.

a) Large numbers of children leave the elementary school and go to work before they have reached their eighth year of school. Very often children are withdrawn when twelve years old, partly because that seems the traditional age of leaving school, and partly because after that age their labor is of value in the market. If the possibility of finishing the elementary school in less time than the customary eight years is held out, it will work in a measure as an inducement to finish the whole course.

b) The necessary condensation of the work resultant from the adoption of a seven-year course will be beneficial. It will lead to a critical examination of the customary studies and their adjustment to the standpoint of common-sense and public utility. A certain redundancy of subject-matter may find correction by this readjustment of time, and educational and utilitarian essentials be better recognized. It may possibly be found that some of the matter embodied in the various studies is unessential, and more of scholastic than educational origin and value.

In a few cities the original course of eight years has been lengthened to

nine, by the addition of the kindergarten year to precede the primary grade. Seven years should be sufficient for the elementary course after the excellent preparation of kindergarten work, when without it eight years was sufficient time for the whole work.

c) The plan of an eight-year course of study in the elementary school has had a long trial. It is evident that there is, in the first place, less public demand for the higher grades than for the lower, judged by the evidence that the attendance decreases very much in the latter years of the common-school course. The rule is that only a small fraction of the children that enter the primary grade go through the eighth year of the course.

The scant attendance in the eighth grade leads practically in many cities to the transfer of the eighth-grade pupils to the few centrally located schools which can maintain such a grade. Some cities maintain for this reason "intermediate schools," in order to concentrate the work in the higher grades. Where pupils of the eighth grade can be combined in classes of convenient size, and taught by teachers who have in course of time specialized for this kind of work, better results are accomplished than are feasible where the classes are scattered and small, and to which, for this reason, the teacher cannot give her whole time, since she may possibly have an additional class of lower grade which she has to teach. This condition points to the advisability of the plan of limiting elementary-school work to seven years and combining the classes that have gone beyond this grade in the high school.

d) The independence of the elementary-school interests from the high-school and college interests, which was broadly stated above as the introductory part of the committee's discussion of this question, is a relative one. Granting that the great majority of the elementary students have nothing to do, either at present or in future, with the college or high school, it is just as patent a fact that the high school and the college have a great deal to do with them. The college has immense educational leverage, that has elevated every department of high-school instruction, and the high school has the same influence on the elementary school. This reactive influence of higher education on the lower schools makes college and high school a benefit to every elementary pupil, whether he ever becomes a student in those institutions or not. The seven-year course of the district school would help the high school and the college; but it would also be, for that very reason, an advantage to elementary education itself.

e) While it is not essential to this discussion to consider the demands made upon high school and elementary school by the schools above them, it is nevertheless so important a principle that it may be stated in this connection. The elementary school and the high school have educational interests to serve, which are attained through the acquisition of knowledge, the latter being the means, and the building up of manhood the aim. In the tests for admission to the higher schools the conditions should not be determined by scholastic considerations alone, but from the standpoint of educational training.

8. The question arises here whether the change to a seven-year course is feasible as well as advisable.

The most direct answer to this question is had by reference to the fact that there are cities which have been conducting their district schools on a seven-year basis with good results. Kansas City has this system in vogue, and her schools are progressive in spirit and excellent in results. The remarkably high percentage of the pupils which enter the high-school course from the seventh grade may perhaps not be altogether due to the shorter course, but the latter is certainly one of the causes, if not the sole reason which has brought about this result.

9. Public opinion holds the elementary schools dear above all other institutions. It feels their transcendant importance for the masses, and consequently for the life of the nation. It will not sanction any shortening of the course of study that cannot be shown to be in the interests of the elementary school itself. This aspect of the question has, for this reason, found a somewhat full discussion in the previous portion of this report.

10. The adoption of a seven-year course should involve no loss in educational essentials, although some scholastic features will necessarily have to be curtailed. Public opinion, in judging of the efficiency of public schools or the pupils thereof, has always laid somewhat greater stress on the practical skill and development of mind than on the scholastic attainments indispensable to school work. Its way of judging of the knowledge the child has obtained in school is to inquire what he can do. The ability to read fluently and with a degree of expression that suggests intelligence, the possession of a neat, legible handwriting, the power of correct expression in speech and writing, the ability to do sums quickly and accurately, are the features by which the success of education is popularly judged. There is some good reason for this attitude to be found in the fact that skill, after all, is knowledge converted into power.

These essentials represent a minimum which must not be reduced by any course of study. But, on the other hand, it may be mentioned as an illustration that there are topics in arithmetic and geography, for instance, that are of more importance from a scholastic standpoint than from educational considerations, and which may be omitted or reduced to the advantage of education. In regard to the very important study of history, the child is sufficiently mature in the sixth grade to begin the study, especially if it has been preceded by the supplementary reading of historical matter and oral lessons in the preceding grades. In the language studies chief stress should be laid on skill and intelligent use, with sufficient preparation in formal grammar; but much of the latter, especially its synthetical use, will be better understood by the learner when taught in the high school in connection with the study of some foreign language.

The shortening of the course should be effected, not by the transfer of the studies of the last year to the high school, but by the sifting of the present work of the elementary schools and its redistribution over seven years.

11. In some places the change from an eight-year course to a seven-year course may not be possible, and a different method of accomplishing the same result may be sought. In such cases consideration is deserved by the plan of not shortening the district-school course, but admitting at the end of the seventh year those pupils that intend to go to the high school, and offering, as heretofore, an eighth year to the others. The objection to this course is the reduction of the already small number of pupils remaining in the eighth grade. On the other hand, such a plan would offer a good opportunity for the desirable enrichment of the common-school curriculum. The studies of the eighth year, which would form the close of the school life for perhaps a majority of the pupils, should include algebra, the elements of constructive geometry, elements of general history, and popular science, perhaps physiology, and later physics. Neither of the latter studies require in their elementary features expensive apparatus and laboratory.

The committee begs leave to suggest that the secondary schools should make the transition from the elementary school less abrupt than it is at present, and that this necessary adjustment requires some important modifications in both the matter and the method of secondary education.

Approved by F. L. SOLDAN, St. Louis; J. W. COOK, DeKalb; W. S. JACKMAN, Chicago; EMILY RICE, Chicago.

Superintendent J. Stanley Brown, of Joliet, then reported for the committee from the point of view of the secondary school, as follows:

Your committee, appointed to consider the subject mentioned from the standpoint of the secondary school, reports in favor of the general proposition, and submits the following as covering the four points mentioned in such proposition:

In order that the school may fairly meet the conditions contained in the proposition, it must offer in *English* six units of work; by a "unit" we mean a subject pursued four or five periods of forty or fifty minutes each per week. Of these six units in English, one must be taken in each of the first two years of the course, one in either the third or fourth, and one in either the fifth or sixth year. So in English four units are prescribed, while two are elective.

In mathematics the school must offer five units of work, of which algebra to quadratics, one unit, and plane geometry, one unit, shall be taken during the first two years of the course, and one additional unit shall be taken either the third or fourth year of the course. So it will be seen that in mathematics three units are prescribed, while two are elective.

In foreign language the school must offer eighteen units of work, of which four units in not more than two languages shall be required and fourteen units shall be elective.

The school must offer five years' continuous study of Latin, four years continuous study of Greek, four years' continuous study of German, four years' continuous study of French, and one year of Spanish.

In science the school must offer six units of work, of which one unit in physics shall be taken by all students, not earlier than the third year. Two units of work in science must be offered before the third year, and three units of work after the third year, including chemistry and biology. So it will be seen one unit (in physics) is prescribed, while five units are elective.

In history and economics the school must offer five units of work, of which one unit must be taken during the first four years, and an additional unit during the last two years. So in history two units are prescribed, while three are elective.

In psychology and ethics the school must offer one unit, and in drawing one unit. Now, it will seem that the total number of units which the school must offer is forty-two, and the total number of prescribed units is fourteen, or one-third of the whole number offered, and, according to the present assignments of work, a student would complete twenty-two units of work in his six-year course, or a trifle more than half those offered by the school.

The work set forth enables the student completing the six years' work to enter any professional school, such as law, medicine, dentistry, engineering, theology, etc., and also to enter upon pure university work at once, and without delay while he completes something he began in the lower school. There are in reality only three stages in a complete education: one ought to end about the twelfth year; two ought to end about the eighteenth year; and three ought to end about the twenty-fourth year. Each of these is in a sense complete in itself, but our present scheme includes part of two in one, and so does violence to the unity of the scheme.

This question is not something "dug up" to be settled, but something "grown up" demanding settlement. Forty years ago there was scarcely one high school in the country whose work could compare with that of the second- or third-rate high school of today. "Go forward" has been the watchword acted upon, if not announced, and the end is not yet. All over this state you may find, if you investigate, that within the past five years high schools offering two years' work have increased that work to three; those offering four years' work have increased the work to five or six years These movements have gone on, are going on, without any blare of trumpet or any precursor to make any announcement.

The demands of the people that our educational schemes be systematized and made to do service are bringing about these changes. We have tarried far too long in the wilderness, and, with the manna in our hands and the promised land before us, we still long for the fleshpots of Egypt. But "go forward" must be our watchword; Caanan is ahead of us.

In all our educational meetings—county, state, and national—we have talked long and learnedly of the boy and girl during the period of adolescence, but no one has felt satisfied that much of practical utility has been accomplished. The pupil is graduated from his eighth-grade work in the midst of this period, when he is possessed of the greatest number of hallucinations, vagaries, etc. He thinks he knows something, has completed something, and during the long vacation following often decides that his education is sufficient and that he need not go further. Now, if he is transferred from the elementary school one or two years sooner, he has time to learn his new surroundings. By the time he reaches this period he has no chance to consider his education ended; he is more easily managed, and is more likely to remain till he has completed the second stage of his educational career. So we say that the scheme herein provided will do more than has yet been done to tide the pupil over this period of adolescence. He avoids the chasm—the impassable gulf so often mentioned as separating grammar school from high school, when both ought to be harmonious parts of one unit and not two separate units.

The period of the pupil's life covered by this six-year course is the most important in his whole life, because during these years he decides what his career in life shall be; and so he needs the close magisterial and parental supervision which this proposition provides, in keeping the young men and the young women at home two years longer. The stimulus afforded by this scheme to the second and third stages of education is almost incalculable. Those who for financial reasons could not go from their own town will embrace with gladness the opportunity to fulfil their long-cherished desire for a more extended education.

Now, touching the first point in the general proposition, this scheme, representing the second stage in education, will connect with the six years' work representing the first stage, smoothly, harmoniously, and without any hiatus.

Touching the second point in the general proposition, it will be seen that the six-year scheme set forth herein includes the work of the first two years of the college.

Touching the third point in the general proposition, it will be seen that the seven years' work has been reduced to six years. The fourth point is almost entirely a question of administration, and can be arranged for by permitting the brighter students either to carry one more study during the last three years of the course, or to do more intensive work than that regularly required. To those accustomed to work according to a prescribed curriculum it may be said that a dozen or more curricula may be readily constructed from the scheme here presented.

We mention below the work which the school must offer—that prescribed for all students, and that elective:

The school must offer in

English	6 units	4 prescribed,	2 elective	
Mathematics	5 "	3 "	2 "	
Foreign language	18 "	4 "	14 "	
Science	6 "	1[1] "	5 "[2]	
History and economics	5 "	2 "	3 "	
Philosophy	1 unit, including psychology and ethics			
Drawing	1 "			
Total	42 units	14 prescribed,	26 elective	

SUPERINTENDENT J. STANLEY BROWN, Joliet, *Chairman of the Committee;* PRINCIPAL H. L. BOLTWOOD, Evanston; DEAN GEORGE N. CARMAN, Lewis Institute; PROFESSOR C. B. DAVENPORT, Chicago; PRINCIPAL G. H. ROCKWOOD, Chicago, absent and concurring. A. R. ROBINSON, Chicago, absent and dissenting; PROFESSOR GEORGE H. LOCKE, Chicago, absent and dissenting.

The committee which considered the proposition from the point of view of the college reported through Professor Butler, of the University of Chicago, as follows:

Your committee appointed to report upon the general subject of the six-year high school considered from the point of view of the college has secured from the presidents of several of these institutions expressions of their opinion upon this subject. The colleges whose presidents have written to the committee are situated in Minnesota, Wisconsin, Indiana, and Ohio. All these expressions are unfavorable to the plan proposed. The grounds of objection named in these letters are five:

1. The inability of the majority of the high schools to do the work proposed because of

a) Inadequacy of the equipment,

b) Incompetency of the instructors,

c) Overcrowded condition with the work now in hand, and the consequent need of opportunity to perform the present tasks more thoroughly.

2. The need of the youth of the average college age for the surroundings, tests, and general atmosphere of the college as distinct from those of the high school; especially—

a) Association with those who are maturer,

b) Demands for new and greater effort,

c) More effective aids to maturity and independence of thinking,

a) Change of local surroundings and broader associations.

3 The unwillingness to adopt the plan on the part of the larger cities that have easy access to well-established colleges and universities.

[1] Physics. [2] Including chemistry and biology.

4. The probable harm that would come to the American college.

5. The probable injury to our national life.

Some of the opinions expressed on these points are as follows:

1. *a*), *b*), *c*). "As to the matter of doing two years of college work in high school, I am fully of the opinion that it would be educationally a distinct loss, should this be generally adopted. There are a few high schools which are so well equipped and have such competent men as instructors that they are exceptional in this matter; and it is a more open question whether they might profitably do some of this work. As for the high schools in general, it seems to me that the plan would be an unfortunate one. The present work of these high schools is not too well done. They are already crowded in the work they have to do, and they greatly need the opportunity of performing their present tasks in a more thoroughgoing manner. To attempt advanced work would be to the injury of their present work, and would not usually result in a satisfactory training in their advanced studies."

2. "A student graduating from the present high-school course is benefited by nothing so much as by going away from the high school with its semi-juvenile atmosphere, and being placed where he is no longer at the head of a school of very young people, but is rather at the bottom of an institution of older students where he is subjected to new requirements and feels himself under obligation to put forth more or less new effort; where he can measure himself with those who are maturer than he is, at the same time when he is of an age when a degree of supervison is desirable; and where close touch with sympathetic teachers and a wholesome class spirit are of great value in shaping up his career."

3. "The plan will not be acceptable to the largest cities, if they have easy access to well-established colleges or universities. The University of Minnesota receives 33 per cent. of its students in its College of Literature, Arts, and Science from the twin cities. They pay no tuition; they board at home. Those cities could not be induced to duplicate the equipments of the University of Minnesota. The same is true of Northfield, and of all college towns of Minnesota."

4, 5. "I note the probable harm that would come to the American college, if the proposed plan were to be carried out. The college has largely trained the leaders and makers of public opinions who have given shape to our institutions and national life. These men of the past were all trained in the old traditional prescribed course. The newer education is broader, training men for the best careers, as well as for professional life, and its fruitage should be as good, or better, than that in the past. It seems to me that your proposed change is likely to deprive many men of the two best years of the college course, and greatly to limit, if not to destroy, the most excellent work of the American college, and so in short do more harm than good."

These objections seem to your committee to derive the influence they have upon those who advance them from the assumption that it is proposed to force upon, or require of, high schools in general, the six-year plan; and, further, that it is proposed to abolish the college by the absorption of its lower half by the six-year high school and of its upper half by the university. Your committee does not interpret the proposed plan in that way. The question is not: Shall the six-year high school supersede the four-year high school on the one hand, and the lower half of the college on the other? The

question is rather: Would the six-year high school meet an existing demand? If so, where and how?

This is more than an academic question. The six-year high school actually exists. It is therefore a practical question whether such a school is a legitimate type of school, and precisely what its function is.

One consideration underlying the subject of this report is the fact that, regarded from a strictly pedagogical point of view, if not from a social point of view, the work of the first two years of the college course is essentially secondary work. This fact strongly suggests that, important as it may be, when possible, to carry on that work in the peculiar atmosphere of the college, it may, where demanded, be suitably provided as a natural extension of the high school, as now constituted. This fact seems to be recognized in the German system of secondary education.

In the judgment of your committee, a matter of more practical importance is the probability that the six-year high school, wherever it can be well organized and equipped, will first of all attract and hold for two additional years of general culture and training scores and even hundreds of boys and girls who at present end their school life with graduation from the four-year high school. These cannot, or at any rate think they cannot, go away from home to college. They can, and will, however, gladly take all that the local high school will give them. This consideration should commend the plan to every believer in college education.

Second, in addition to this higher culture and training afforded by the six-year high school, there will also be made available much technical and other special preparation for life-work now beyond the reach of hundreds, if they must leave home to secure it as soon as they have finished the present high-school course. It is happily becoming more and more difficult for the student to enter upon his professional studies without further general preparation than the four-year high school affords. The two additional years proposed would enable the boys while still at home to secure full preparation for professional study, whereas, as the case now stands, such preparation is assumed to be out of the reach of very many. The actual working of the plan in several high schools and private institutions establishes the claim of this advantage. This also commends itself to all who regard the question from the standpoint of the college.

Third, it seems probable, further, to your committee that, if the training now afforded by the first two years of the college course be made available to the constituents of the local high school, many boys and girls would be able at a moderate expense to complete half of the college course while living at home, and thus many will be stimulated and will find it practicable to afford the expense of continuing and completing their college course away from home, who could not have done this if the entire four years of college work had to be done by them in residence at one of the colleges.

It will be seen that the six-year high school is not conceived by your

committee as in competition with existing institutions. Its function is not general, but special. It aims to meet the comparatively rare and exceptional demands of a class of youth that has arisen out of the concentration of population in our cities. Such a school would not serve as a model for general high-school development, but would represent a type of school that would in all probability be rare for a long time to come. The committee would deprecate an effort to establish such a school, save in communities where the demand is unmistakable, and where it is equally evident that the school would be completely equipped and liberally maintained.

The realization of such a plan would not, in the opinion of your committee, materially effect the college in regard to its constituents or its curriculum. There will doubtless always be a large number of parents who desire for their children, and of youth who desire for themselves, the peculiar life and associations of the college. For such the college doubtless will continue to stand open when these seek entrance after the four years of high-school work. But what about the boys and girls who want and need more than the four-year high school can give, but for whom the college is now practically beyond their reach? Admitting the validity of all the objections made, it seems to your committee that, from the proposed extension of the high school, advantages would accrue to the life of the people of such character and such magnitude as to warrant such extension in the conditions above described.

PROFESSOR NATHANIEL BUTLER, The University of Chicago, *Chairman of the Committee;* DEAN CHARLES R. BARNES, The University of Chicago; SUPERINTENDENT NEWTON C. DOUGHERTY, Peoria, Illinois; PRESIDENT GEORGE E. MACLEAN, The University of Iowa; DEAN GEORGE E. VINCENT, The University of Chicago. PROFESSOR THOMAS A. CLARK, The University of Illinois, dissenting; PROFESSOR W. H. PAYNE, The University of Michigan, dissenting.

Professor Payne bases his dissent upon the following considerations:

To extend the high-school course to six years by adding the first and second years of the college course would seem to me to be an unwise public-school policy—a policy which, if largely followed, would seriously imperil our system of secondary instruction.

There is a widely popular belief that only common-school education should be supported by public taxation; that the high school is a luxury to be paid for by those who enjoy its advantages. I have no sympathy with this belief, but as it is a somewhat stubborn fact, it should be taken into account by those who are molding our public-school policy. The people will support one literary institution of collegiate grade, but they will not support fifty.

It goes without saying that the most costly element of our public-school system is our high school, and by reason of its cost, even as now organized, it is maintained with more or less difficulty. If the proposed collegiate

element were to be added to it, this cost would be considerably increased, and in some cases might become unbearable. I do not believe there is a board of education in Michigan that would incur such a risk. It is certain that there is no high school in the state that has ventured to extend its course as proposed in the majority report.

It is for these reasons that I do not feel free to approve the report adopted by the majority of my colleagues.

Very respectfully,
W. H. PAYNE.

During the discussion of these three reports, in which many delegates participated, President Rush Rhees, of the University of Rochester, contributed the following paper from the standpoint of the college:

The reports presented by the three committees, and the discussion which has already been had upon two of them, have put me under no little obligation, and have also interested me deeply. Speaking to this question from the point of view of the college, I desire, in the first place, to disavow for the colleges any element of jealousy of the six-year high school, if it is to come and is to do effectively any part of the work which now is undertaken by colleges. At Rochester we stand ready to admit to advanced standing students who are fitted for such advanced standing, whether they have secured this fitness in institutions that bear the name of college or in those that are known by some other designation. We recognize that it is our mission as well as our glory to serve the interests of the community, and we regard it as not only prudent, but also obligatory upon us, to hold ourselves ready for any adjustments and modifications that educational development in our country indicates as advantageous to the preparation of young men and women for life.

In the second place, I desire, at the risk of being somewhat trite, to emphasize what I regard to be the peculiar value of the American college as an educational agency. I think its signal accomplishment has been the securing to its graduates of a certain quality of intellectual maturity and breadth of view, which has been dependent, not so much upon the modernness of its curriculum or the adequacy of its equipment, as upon the aim which it has kept before itself and the method which in the past has for the main part characterized it. That aim has been frankly liberal culture. That is the development of the man rather than his specific preparation for any profession or calling, and the method has been that of more or less intimate influence over younger minds by men eminent for their personal forcefulness quite as much as for their scientific attainments.

Thirdly, I believe we are justified in regarding this distinctive product of the American college—namely, the production of a notable degree of intellectual maturity, as distinct from technical proficiency—as a good too valu-

able to be lost in any readjustment of our educational process that may come with the coming years; and that, therefore, the colleges are justified in saying to such a proposition as that which you are considering that they must earnestly urge that any new provision for the preparation of young men and women for life shall conserve this most valuable feature of training which our colleges have been offering.

Fourthly, in voicing that insistence I am somewhat embarrassed by the fact that our colleges have not always been true to their ideal, but have been lured on by the ill-defined desire to do the work which belongs properly to the university and the professional school. I believe, however, that, much as we have drifted somewhat aimlessly in the past, we are today recognizing with ever greater clearness the meaning and dignity of that liberal culture for which the college as a college stands (I may add that the University of Rochester defines itself as a college of liberal arts); and are owning that the colleges ought to devote themselves with increasing singleness of purpose to this noble end. How they may do this, and at the same time contribute to the solution of the pressing problem of decreasing the time requisite for the preparation for life, is something which is seriously occupying their thought, but it is not germane to the present discussion.

Fifthly, I have taken so much of my time for preliminary definition because in this way I can most clearly indicate the grounds for my skepticism concerning the wisdom of the proposition which you are discussing. As I said at the outset, if the high schools by any development can help to solve our problem of waste time, and at the same time conserve those elements of strength which our colleges have contributed to American education, we stand ready to welcome eagerly the new ally. But I doubt the possibility of securing the intellectual maturity and breadth of view for which our colleges stand by handing over to even the exceptional high schools the work of the freshman and sophomore years.

I find myself in agreement with one of those whose opinion is printed in the report submitted, in believing that it makes a difference in the development of mature intellectual powers whether a given group of subjects is studied as a culmination of a secondary course or as the foundation for a college course. The feeling that these studies mark the end of one stage in education tends to disconnect them from the more advanced and significant work for which, as matter of fact, they are meant to make preparation. Because a man's reach must be more than his grasp, it is educationally an advantage to have the work of the freshman and sophomore years done in the atmosphere created by the presence of men who are doing higher work.

Sixthly, I seriously doubt whether the secondary schools, excepting those few which are avowedly fitting schools for colleges and universities, will be content even if they are able to do work equivalent to that of the freshman and sophomore years in colleges. The fact that those first two years in college are devoted to foundation work in preparation for the more advanced and more maturing work of the junior and senior years renders these studies

somewhat ill-adapted to the last two years of a six-year high-school course. From my observation of the tendencies manifest in high-school curricula, I believe that those schools will desire to take up many of the subjects which commonly are assigned to the junior and senior years of college rather than to devote themselves to the work indicated in the report presented by Dr. Brown, and my impression is interestingly confirmed by some of the remarks made from the floor this morning.

I would go a step farther and say, if the public is to maintain a six-year high school, it would naturally expect that the last two years in this school would be the culmination of the final stage of education for many students, and would demand that the subjects taught be parallel to, if less advanced than, the subjects which we have been accustomed to find in the culminating years of the college course.

If the end sought is that maturity of mind which our colleges in the past have secured, we cannot afford to ignore the fact that in the course of education some things should come early and others should follow after; and I do not think that any will believe that those studies in history and economics, psychology and philosophy, which proved to many of us the most enlarging influences which our lives had found when we drew near our college graduation, can possibly produce equivalent results if taken two years earlier. Yet that the schools will be under almost irresistible pressure to teach those subjects, rather than to insist on the continuance in mathematics and language and elementary science which the report of your committee calls for, seems to me to be indubitable, except, as I have already indicated, in the case of schools whose one and avowed purpose is preparation for a still higher education; and I agree with those who hold that that purpose must be incidental to the work of our public schools.

In conclusion, for the reasons named: that I cannot believe that the college work of the freshman and sophomore years could have equivalent maturing value if transferred to the concluding years of a high-school course; that I seriously doubt whether the public and the high-school authorities themselves would consent to do the kind of work which the college holds to be suitable to freshman and sophomore years; and that I believe that the college view of what is suitable to freshman and sophomore years is justified by the efficiency of the colleges in producing men of intellectual maturity and breadth of view; I am not favorably impressed by the proposition to extend the high-school course for two years, and to delegate to it studies taken in the colleges in the freshman and sophomore years. In reiterating this conclusion, I desire also to acknowledge again my indebtedness to the reports which have been submitted and to the discussion which has been had upon them, and to disavow afresh any institutional jealousy of the proposed expanded high school. Any device which will more effectively secure the education of our young men and women is to be welcomed, whatever readjustments it may necessitate in existing institutions.

DEPARTMENTAL CONFERENCES.

ASTRONOMY.

The principal paper read was that of Professor G. W. Myers, of the University of Chicago School of Education, on "The Neglect of Astronomy in the High School." Numerous species of apparatus, constructed in part by the members of a high-school class, were shown to illustrate the points emphasized in the paper. In the discussion which followed the argument was strongly brought forward that under the present conditions the teacher could not afford to put so much time into the building of apparatus and into out-of-door observations as required.

Professor Meyer's paper was as follows:

The doctrine of the fundamental importance of science-teaching in primary and secondary education has had numerous friends and foes since the publication of Spencer's *Education*. Of late years the doctrine has been tightening its hold on the minds of practical American educators. The gradual drifting of practical education toward a still greater increase of emphasis, in elementary and secondary schools, upon nature-study and elementary science as a controlling factor of American education, is perceptible in almost every modern educational institution. The conception of the paramount importance of the study of the mother-tongue—a conception inherited a few years since from polyglot Europe—is weakening, and is being superceded by the view that the child uses his mother-tongue as unconsciously as he uses the air he breathes, and that problems connected with his mother-tongue seem to him artificial, and even "trumped up," if the expression may be pardoned. The force of current arguments for the importance of a training in clear, forceful, and idiomatic expression of thought in the mother-tongue is practically *nil* when considered entirely apart from a direct and very particular regard to the character of the ideas to be expressed.

The writer's experience may be exceptional, but so far as he is able to attribute to his school training definite and certain credit for what has been helpful to him in after-life, it must be reckoned mainly to the score of clear, definite, and pertinent ideas, and to the power to draw immediate and well-warranted inferences from those ideas. Given a body of clearly-conceived ideas in which the student has a spontaneous and vital interest, and most of the difficulty of the teacher's problem of securing clear, accurate, and forceful expression disappears. Is not the conception of the supreme importance in education of expression in the form of language a survival of the period when the sole means of carrying on instruction was by word of mouth? Is there not, in the current teaching of English composition, a painful surfeit of effort spent on the attempt to train students to write brilliant little skits about "nothing in particular"? Favorite themes are "How My Washing Came Home," "College Slang," and "The Tale of an Old Shoe." Anything seems to go as subject-matter for training in English.

In many ways the disposition to treat trifling subjects pompously and attractively is directly antagonistic to the formation of scientific habits of thought, which seek to state the greatest possible amount of truth in the fewest simple, terse, and transparent terms. The newspaper reportorial state of mind is an end of doubtful educational value. Every science-teacher knows the difficulty of getting students to weigh the relative import of ideas, and to write of them with due regard to balance and proportion. Balance and proportion are not so much a matter of paragraphing as of thinking. The habit of spreading trifling ideas over several pages of foolscap is positively detrimental to the formation of these scientific habits. The knot to the pedagogical problem of teaching good English is first tied and then drawn into a distressingly hard one, by the pedagogue himself, by an artificial reversal of the natural order of attaining those ends in real life in which consists the very reason for the importance of a rational training of the power of clear, accurate, and forceful expression. In actual life the acquisition of important ideas on important questions is first and foremost, and the need

of communicating them to our fellows in clear, simple, and forceful language is the second step. The second step is made necessary, of course, because concert of action among men is the only means of realizing in practice the consequences of our thinking. The point here insisted upon, however, is that clear, accurate, and forceful ideas furnish the conditions precedent to clear, accurate, and forceful expression. Speaking more astronomically, overemphasis of English teaching by the use of trashy, or inconsequential, subjects looks in at the wrong end of the pedagogical telescope. Natural proportion and perspective are thus lost to the student, and the power of estimating real values is distorted, if not destroyed. Results approximating the grotesque are the natural consequence of such procedure.

It is for those of us who are engaged in actual teaching to remind ourselves often that most of the advance which the race has made has arisen from the *new ideas* that men have discovered, mastered, and applied, and not from the mere polishing of the means of expressing them in language. Free and facile power of expressing these ideas have, of course, greatly aided their introduction and acceptance; but just now it is a question of where the emphasis should rest in the early, more significant, and more difficult stages of school work. Should it rest on the stimulation of clear, worthy, and distinct ideas of some useful sort, and on the arousing of an interest in them, where the normal interest does not already exist; or should it rest upon the clear, simple, and forceful statement of these ideas in language, with but secondary regard to the nature of these ideas? Evidently both are of great importance. Still it is not at all the old question: which is the more important, eating or sleeping? It is rather, which is of *first* importance to the babe, food or exercise? To raise the question is to answer it.

Manual training, which has already passed the stage of being looked upon as a fad and is, we believe, in the schools to stay, has to be credited among other of its pedagogic contributions with demonstrating that ideas may be clearly formed and forcefully applied without language, and moreover, that when ideas are clearly conceived they be clearly and easily expressed. Let

us have in the schools a season of insistence upon thought-stuff having a rich and varied content, and undertake for a time to secure expression—as nowadays we secure so many other good things in education—*incidentally*.

The advocates of the overmastering importance in school work of a study of language are much given to pointing scornfully at the meager results to show for the time and energy put upon the mathematical studies in the elementary and secondary schools. But are our college boys and girls speaking and writing correct, elegant, and forceful English, even in cases in which they have come up to us through the heavy courses of English we have, of late, required them to go through? It must be admitted, I think, that here too the results are disappointing, often painfully so, notwithstanding the fact that English courses are of much less inherent difficulty than are mathematical courses.

But improvement can hardly come from charges and countercharges of disappointment and of pedagogic delinquency. The main point to be insisted upon here is that boys and girls should be given something interesting to think and write about before they should be expected to do much vital thinking or forceful writing or speaking. Expression and thought expressed must not quarrel, but harmonize. Vehement utterance and overdrawn description are not guarantees of vigorous thinking. Immoderate expression implies intemperate judgment. This is the idea which is rapidly creating a more progressive attitude of the general mind toward science work in the schools. The subject of the right sort of school science has the great advantage over all other subject-matters of bringing before the immature minds of boys and girls a body of clear, concrete, real, original, and easily relatable ideas about things embracing so wide and varied a range of interest as to arouse the spontaneous activity of almost every type of normal mind. In fact, it goes far toward normalizing minds which have been artificialized by the unnatural methods of some of the other high-school subjects. This is not the least of its functions in the secondary-school work of today.

But, strange to say, in the midst of a period of unparalleled interest in high-school science work, we see a general disposition

to drop astronomy from the curriculum. Certainly it behooves those who are directly concerned with the teaching of astronomy in any part of the school system to inquire into the causes for this tendency, and so far as lies in their power to seek to discover and to remove the causes. However humiliating it may seem to confess it, it is unfortunately true that there exist the strongest reasons for believing that current teaching of astronomy is largely to blame for the general tendency of school officers to leave the subject out of the courses of the high school. As a matter of fact, the teaching of astronomy in high schools is in the sorest need of study in the light of recent educational advance. One reason why this peculiarly interesting and important science, educationally considered, is not receiving the attention it deserves of school men lies in the fact that astronomy, as taught in high schools, does not deal with what are looked upon as the chief concerns of everyday people. But a reason more damagingly operative lies in stupid and stupefying ways of teaching it. "If a student does not like my subject," says one, "why, then, let him drop it; he does not have to know astronomy." Such sentiments have been allowed to pass muster too long among indolent high-school teachers. A teacher has no right to the attitude "I'll do a good honest day's work and let results take care of themselves." His prime business is precisely to bring results about. No teacher of astronomy worthy either of his science or of his calling ever stooped to the use of these sentiments, of course. But the widely prevalent, though exceedingly erroneous, notion that astronomy is of value to but a comparatively few peculiarly endowed persons allows the science to stand apart from its fellow-sciences as belonging to the category of subjects with regard to which the school can afford to maintain an attitude of indifference. Then this mistaken view is fed by the circumstance that high-school teachers do not handle the subject by methods in any way analogous to those which the other high-school sciences have shown to be indispensable to profitable science study.

How easy it is for us to forget that physics courses and chemistry courses are not in the high-school curriculum prima-

rily to make physicists and chemists! None of us fail to admit, on second thought at least, that these subjects fully justify their ever-increasing demands for time and for fuller recognition in the high school, primarily because, treated by modern methods, they contribute powerfully to the training of youth into scientific methods of study and of thought. Teachers of these sciences have learned to a very considerable degree how to present the truths of these sciences in accordance with the Newtonian law of modern pedagogy: "We learn by doing." They no longer stand on the respectable, but very decrepit and very un-American, dogma: "Teach the subject, no matter whether anyone learns anything." They have learned the practical truth that the teaching act is abortive, and even worse than useless, unless someone learns. Teachers of physics and chemistry pretty generally take their subjects and their students seriously, holding themselves responsible for a tangible result. Excellent courses in these subjects have accordingly been thought out for the secondary grades. The public has, as a consequence, conceived an ardent interest in the experimental work of these sciences as school subjects because they stand for the best training for the work of modern life. Indeed, science work in the high school to the common mind means physiography, physics, and chemistry exclusively. Scientific methods of thought—which means the methods of these three sciences—pass as legal tender in every vocation and avocation of actual life. This is no longer disputed by those who have done some of it. The most that former foes of science are now seeking to prove by their *a priori* arguments is that other subjects, if studied scientifically, are *equally* valuable educationally.

It is surprising to the point of astonishment that the development of courses in astronomy for the secondary schools has not kept pace with the development of courses in physics and chemistry. Fifty years ago astronomy had the decided advantage of these so-called modern courses in the schools. As a rule, astronomy is now studied in the high school almost wholly from the text-book. A college professor of astronomy told the writer only the other day that he could not tell the difference in his

college classes between students who had and students who had not taken a high-school course in astronomy so little had the former profited by their high-school work. He also stated that as astronomy is taught in high schools it is positively of no value at all, and that it even went far toward killing what little normal interest the student once had for the science.

Is it not high time that the general indifference toward astronomy be given our thoughtful consideration? The aversion among college students is not confined to students having a distaste for science. The writer has heard many students, who professed the deepest interest in chemistry and physics, express a decided dislike for astronomy as it had been taught them in high schools. To an inquiry among high-school principals as to the reason why astronomy is not more generally studied in high schools, the replies pretty generally divide into two classes. One class say merely that astronomy is of little bread-and-butter value to people; and the other, and much larger class, claim the lack of attention to it in their schools to be due to archaic and unscientific methods of teaching it. They claim, quite generally, that they cannot get it well taught. They say it is bad enough to teach unscientific subjects by text-book alone; but that it is positively intolerable, in this age, to teach a science by non-scientific methods. The time-honored claim of friends of astronomy that its influence is decentralizing and broadening to the individual no longer appeals to the principal of a high school who knows that, as the subject is taught, it makes no vital appeal to the student—in fact, that it does not take hold of his thought-processes at all.

From some first-hand knowledge of what is going on in the schools, the writer is led to believe—in the light of what intelligent citizens are demanding—that principals of schools are in large measure justified in throwing the subject out of the curricula, and using the time, thus gained, for the better thought-out and more modern courses in physics and chemistry. Fellow-teachers and lovers of astronomical science, we have to face the question: "What ought to be done about it?"

But, you insist, the logical procedure would be to secure

teachers who can and will handle the subject in a scientific way. This remedy, however, like many another remedy for faulty school work, is not so easy to administer. First, because the primary interest of those who are actually teaching astronomy in the high school is usually in some other subject, as mathematics or physics. The astronomy teacher's work in his favorite subject is often of a high grade of excellence, and the school could ill afford to dispense with his services in these lines. In the second place, it is less expensive, less disturbing, and more consonant with the inertia of circumstances to let a moribund subject die than to undertake to rejuvenate it. Nobody seems to care much for it, so why waste energy upon it? In the third place, texts and teachers for the scientific treatment of school astronomy are neither plentiful nor increasing. Publishers remind us that the high-school audience for astronomy is small and on the rapid wane.

Other reasons will readily occur to all, but those enumerated seem to be most efficient in contributing to the neglect of astronomy.

A few believers in the educational value of rightly taught astronomy are disposed to chide the physics, chemistry, and physiography for appropriating to themselves the lion's share of the time allotment to science on the high-school program. The writer is, however, inclined to the opinion that the trouble lies deeper, and that the apparent crowding out is rather a case of the "survival of the fittest," and that it must go on at an accelerated rate until astronomical method adapts itself more perfectly to modern conditions and to modern educational ideas.

An examination of the reasons enumerated will show that every one of them can be removed by earnest and concerted effort on the part of those who love astronomical science, who can teach astronomy, and who wish to teach it in such a way as to enable the student to derive from it its fullest educational value. Is the importance of the resurrection and rehabilitation in the high school of this time-tried and truly worthy subject not great enough to induce this conference to take the initial steps today looking toward bringing about this end?

But while the problem of reviving the interest in astronomy is not an easy one, and can be satisfactorily solved only by concerted effort, still there are some elements of the solution which are so conspicuously fundamental that even isolated efforts will be of value. The psychic acts of observation, comparison, discrimination, classification, generalization, and finally of deduction, so indispensable to all real science work which is directed toward an educational end, are but very feebly appealed to, if at all, by pure text-book methods. Imagination and memory alone receive attention in current high-school astronomy. But even the imagination should start from facts clearly thought out, nor should the memory be burdened with undigested materials swallowed on faith alone. However important the cultivation of memory and of the scientific imagination may be, it is true that these faculties are only the servants of the reasoning faculties, and must never be exalted into matters of exclusive, or even of *chief*, concern in science study. Moreover, there are so many other subjects in the high school which exercise the memory and the imagination that astronomy can scarcely hope to establish for itself a peculiar place in the high school on the basis of peculiar merit as a memory and imagination trainer.

It is my purpose briefly to point out here how, by a little ingenuity and industry on the teacher's part, astronomy may, with almost no expense, be treated as a science by high-school classes. I may be allowed to preface my more specific remarks as to ways of conducting observational and experimental work with a statement of what seems to me should be attempted as a practical means of restoring astronomy to its rightful place in the schools.

First, I would advise an observational course of work having to do with the study of the more obvious celestial bodies and movements, with a view of giving the pupil some first-hand knowledge of those facts of astronomy which lie within the reach of the naked eye and of a twelve-week course of study. The connection of the observed movements with the familiar changes of day and night, and of the seasons, would be involved. The course would consist of a good deal of what is commonly

known as mathematical geography and of the geography of the heavens, or constellation study. A ready knowledge of the most easily identifiable objects and motions on the sky should be the aim.

Second, this twelve- or thirteen-week course would be followed by another, of about the same length, dealing in a laboratory, or experimental, way with the physical laws which underlie the most familiar changes in temperature, light, and distribution of life on the terrestrial globe. It would be conducted precisely as a modern high-school physics course is conducted, merely emphasizing matters of astronomical importance, and having to do with making rational to the student those laws of most concern to the terrestrial inhabitant.

A third course of equal length would consist largely in the devising of simple apparatus for measuring the positions of the heavenly bodies from time to time, and the discussion and study of observations made with these apparatus. Astronomical phenomena would here be penetrated a little more deeply, and astronomical law would be studied on a larger scale. This course would fill out a full year's work of thoroughly scientific study. Finally, I would have this course put into the curriculum as optional against the physics, or the chemistry, or the physiography. I would also plan the work of these four sciences so that a student could divide his science time, if he chose, between them, making the transition at the beginning of any term. Each of the four courses would comprise enough of what is fundamental and common to all to avoid cutting off the student who has taken only one of them from taking up another, if he chooses, at a somewhat advanced stage.

I desire now to indicate the character of the work of which the third term, mentioned above, should consist, as well as to show such crude apparatus for measurement as the class could and in default of better, should make and use.

1. Use of the hand.
2. Shadows and flag poles.
3. Use of stakes for finding horizontal distances between hilltops.
4. Drawing board and tripod or Jacob's staff.

5. Visual angle of globe set on perimeter of a large ellipse and measured from a focus.
6. Stadia and trombone stadia.
7. Cross staff.
8. Altitude boards.
9. Meridian stone.
10. Plumbline gnomon.
11. Latitude box.
12. Home-made telescope.

Before closing, let me mention that a movement to improve the teaching of astronomy in the high school would just now be opportune. Correlation and unification of the metrical, quantitative, and mathematical sciences in the secondary school are now being widely and earnestly discussed, and the body of first-rate opinion favorable to them as improvements in high-school teaching practice must not — cannot — be ignored much longer. A study of the professional output of what may with both justice and propriety be called the professionally productive teaching force of the eastern, central, and western states will convince anyone that both theory and practice are overwhelmingly in favor of the closer unification of cognate lines of high-school study. Now, my point is that astronomy, which since the days when it sloughed astrology and became truly a science, as well as before it was burdened with this "old man of the sea," has always been the closest ally of the mathematical sciences. It would, indeed, be difficult to determine which of these closely kindred subjects has helped the other most in the grand march of scientific progress, that march which until very recently was synonymous with the advance of astronomical and mathematical thought. The reason for this lies in the nature of things. The establishing of every astronomical truth calls for mathematical process and method. There is therefore more truth than poetry in the statement that these two subjects have each vied with the other in the struggle to be mutually helpful, and that whatever has helped the one has always stimulated the other.

Of all subjects in the high-school curriculum astronomy furnishes the most natural, the easiest, and the most truly helpful correlations with mathematics. In fact, real scientific astro-

nomical study cannot proceed without correlating with mathematics, and only a little less strongly with physics, and chemistry. I would argue, if it were necessary, that the correlations of astronomy with physics and chemistry should be made of the strongest character. What we commonly refer to as "the new astronomy" should find large place in the secondary school. Its qualitative as well as its quantitative character adapts it peculiarly to high-school students. This sort of astronomy is little else than a correlation of physics and chemistry. So that we are here again brought face to face with what seems a pedagogic contradiction. In the very midst of a school situation in which interrelation, correlation, and unification of subjects are the central—even pivotal—ideas about which pretty much everything seems turning, we behold astronomy, that one of all the sciences best adapted to treatment under these ideas, in danger of being dropped almost altogether from the science courses of that particular part of the school system which these central notions of modern pedagogics are supposed to benefit most. Again, it seems clear that the trouble cannot be with the subject-matter; but rather with the mode of teaching it. Again, I ask, can we, who by our presence here demonstrate our interest in the educational aspect of such subject-matter as astronomy stands for, afford to stand by with apparent indifference and allow the most truly scientific of all the scientific subjects to perish from lack of our willingness, or readiness, to render assistance in the problem of finding its true place and relation in the up-to-date high-school curriculum? I, for one, answer with an emphatic No!

The second paper was by Assistant Professor Kurt Laves, on "The Use of the Globe in the Teaching of Elementary Astronomy."

DEPARTMENTAL CONFERENCES.

BIOLOGY.

The subject announced for consideration was: "What Phases of Botany and Zoölogy Should Be Emphasized in Secondary Instruction?"

The subject was presented from the standpoint of botany by Professor O. W. Caldwell, of the State Normal School at Charleston, in a paper upon the

ESSENTIALS OF HIGH-SCHOOL BOTANY.

A detailed plan for a course in botany cannot be completely adapted to the use of any two schools, nor for the work of one school during consecutive years. Visitation of high schools, correspondence, and reading of educational literature will soon convince one, however, that in the best high schools the courses in botany that are based upon the same sort of interpretation as to essentials have ample individuality. One will be convinced further of the fact that there are wide differences in ideas as to just what the course in botany should include. Among high schools of lower grade in quality of work done, in general, there is likely to be found less variation either in individuality of work, or in the prevailing notions as to what should constitute the course. In such schools the work is usually chiefly text-book work, and since but few of the so-called standard texts lend themselves readily to a purely text-book course, less variation is presented in schools of this class. The teacher in schools of this grade is usually less conspicuous as a variable element, on account of his more limited knowledge of the subject, and consequent greater dependency upon the text-book.

In teaching, as in any other business, the ends sought should determine the materials used and the treatment administered.

Any artisan to be successful must select his materials and determine his method of treatment of those materials with reference to the sort of structure that he wishes to build. The course in botany should recognize the values that should come from the proper study of plants, and should adjust itself to the development of these things. The first one of these values that comes from the proper presentation of this as well as from other sciences, is the scientific habit of thinking. So many good statements, differing considerably however, have been made in various places by different persons concerning the scientific habit of mind that an attempt at a full exposition of this prime result to be obtained from a course in science need not now be made. A brief review of the more important features of the scientific mind will suffice. The student of truly scientific training holds that it is through truth only that educational or spiritual freedom is to be found. The truth is desired above all things. The integrity of one's mind is to be maintained only by the most willing and ready exposure of one's notions to any new evidence, regardless of whether this evidence is favorable or counter to the beliefs previously held. Withholding one's conclusions from one set of evidences and exposing them to another set is distinctly contradictory to the scientific method. Mere exposure to science does not always confer this method. The claim may be made with justice that many so-called scientists are most unscientific. Many of our research workers have undertaken a piece of work, not to see whether a certain disputed conclusion be true, but to prove that it is true. Oftentimes do we have excellent papers appearing, being based upon phenomena that have been under the eye of other observers many times, but which were not seen because those particular phenomena were not being sought. Some such things must necessarily occur, due to the nature of our limitations.

The scientific mind can wait. Judgments are not so necessary as it is that they be correct in case we have them. The scientific imagination does forecast a judgment, it is true, when some evidence has been observed, but it is left for accumulating evidence to test the validity of forecast. The scientific mind

must be alert for those phenomena that bear in any way on questions in hand.

Clear expression develops along with clear thinking, since each complements the other. The expressing of what one observes has advantage over a similar act for that about which he has read, since in the former his own words alone must suffice for conveying his thoughts. Logical observation should always be followed by brief but comprehensive description. The scientific mind speaks clearly, concisely, logically, and neatly.

The methods of thinking inculcated by proper scientific training should help to protect their possessors from many physical and ethical errors. Any good course in science must help establish the law of causation. A well-grounded working belief in the fact that causes of necessity must have their results, and results their causes, will do much to remove the still rather popular notion that we can go counter to natural and ethical laws, and in some way escape from the logical results. I do not believe that literature or history, or any other subject in our curriculum, furnishes any one thing that is more potent in making a high type of manhood than is this law of causation as taught in the true methods of science.

It should be mentioned that the possession of the scientific method in one field does not prove necessarily that it will be employed when the possessor enters another field. Men of scientific training frequently make themselves ridiculous by going into fields in which they have done no definite study, and giving utterance to statements indicating that not only have they deserted their field, but their method of thinking as well. Hence the necessity of a reasonably thorough course, in several of the sciences—physics, zoölogy, botany, chemistry. The student should learn to apply the method of thinking to several fields of science and to other fields as well. The scientific method is no longer peculiar to science. It is applicable and largely used in various other lines of study.

As a general value to be obtained from a study of botany there should be developed as wide a knowledge of plants and the fundamental principles of the plant kingdom as the length

of the course and development of the pupils make possible. The two fundamental processes of nutrition and reproduction should always be recognized quite early in any general course. Plants exist for the performance of these two functions. Each organ is so adjusted as to have some relation to one or both of these pieces of work, and plants differ among themselves just as their adjustments in structure and habit differ with reference to the solution of these two problems. Between different great groups of plants there are quite wide differences in the ways in which nourishment is obtained and in which new individuals are established. These group differences in structure, as adjusted to work, are such as to establish, in a general way, type-forms for each great group, as mosses, ferns, or flowering plants. Such group-types may be recognized and the general significance of parts understood by a student in a fairly brief course. It is not a difficult matter for this student, though a beginner, to arrange these groups according to their order of complexity, and to have a definite appreciation for the facts in these adjustments in structure that cause the groups to be arranged thus.

There are many variations, however, within the group, and one no sooner studies several members of the group than he finds that there is a more or less well-marked gradation in complexity within it. When he has studied two or more groups, and has arranged them and the various forms representing them in order of complexity, he discovers that as much of the plant kingdom as he has observed is arranged with reference to adaptation to nutrition and reproduction in a series running from quite simple to quite complex. Completion of study of all groups more firmly establishes his notion of this relation as to complexity.

Not all of our high-school students can see the evolutionary significance of this portion of our botany work. There is little doubt in my mind that in some high schools the evolutionary study of plants has resulted in extremely poor returns for both student and botany. But certainly it is true that the structure of plants should be studied with reference to nutrition and

reproduction; that all students will recognize wide differences in these respects between groups, and less marked differences between more closely related individuals; and, further, that the best students will obtain a fairly accurate and very helpful conception of the evolution of plants.

The knowledge of plants to be obtained should be wide enough to make the pupil conversant with the leading physiological processes, and with the leading adjustments in form that assist in performing these processes under various physiological conditions. Associated with this should be a knowledge of the fact that plants are not static, but constantly exhibit variations in habits and structure; and, following these facts, some will obtain a knowledge of the general problem of evolution. There should be obtained considerable knowledge of the relations of plants to man, much of this knowledge coming in a merely incidental way. A speaking acquaintance with a considerable number of individual species of plants is highly desirable.

A third general value that the study of botany should give is that of culture. The time has passed when we believed that students wishing especially to become cultured should study Latin and Greek, while those who could not afford to become cultured should content themselves with the study of the sciences. The cultural value of the proper study of botany is not in danger at present of being overestimated. To have the qualities of mind given through the proper study of botany, or any science, to have the first-hand knowledge of, and interest in the life of things about us, certainly contributes to general culture. But to claim that all persons may attain their highest degree of culture from any subject, or group of subjects, assumes a uniformity of human beings that by no means exists. Each may obtain his highest culture possibilities by pursuing his own most culture-producing subject, at the same time maintaining his intelligent interest and sympathy in other lines of human endeavor.

A fourth value is the establishment of a permanent interest, as the basis of future observations. By this I do not mean the establishment of such an interest as will make the students

specialists in botany. Some may become specialists, if the course is properly presented, but it should not be because any part of the purpose beneath the course is to make specialists. The course should establish a general interest in plant life that will be lifelong, in just the same way that other courses of study should establish the same sort of interest within their own field. Broadening of intelligence and making more definite inquiries into surrounding phenomena are no small parts of the reason for existence of the botany course.

Recognizing the conditions existing among high schools, and believing that there is pretty general agreement as to the values to be obtained from a high-school course in botany, it seems that it should be possible to come more nearly to an agreement as to what should be the organization of the course. It would seem that if the course is to be based upon the fact that all plants are performing but two functions, nutrition and reproduction, the sooner that the students obtain some elementary notions of this fact, the more economical will be the work done. As early as possible structures should be interpreted in the light of function. I know of no better way to begin with a class of high-school boys and girls than to select some plant, already known to most or all of them, and to proceed to determine the functions of its different parts. Some general conversation by the students, while having the plant before them, usually will show that they already know the significance of roots, stem, and leaves, though they may not have formulated this knowledge into a definite statement. A few physiological experiments, in whose arrangement some of the students assist, but which are used for demonstration and observation before the entire class, will serve to illustrate the work of roots, stem. and leaves, and will form a basis for an elementary discussion of absorption, conduction, and photosynthesis. This discussion must be quite elementary, it is true, and must avoid many technicalities that some specialists have wished to see introduced, but we must remember that all we wish to do in this connection is to establish a relatively small amount of knowledge of a few essential processes in the plant's solution of the problem

of nutrition, namely, the significance of absorption and of the function of chlorophyll.

Following this work, the leading facts of reproduction may be established readily by planting and studying a few seeds, some slips, sprouts, etc. In this way, or some similar way, there is established the fact that structures exist for the performance of work, and that both structure and work must be studied in order that either may be understood. The amount of such work introduced for the purpose of establishing a notion of the plant's fundamental processes by use of plants best known, may be elaborated profitably if ample time is had for an extended course. In connection with this preliminary work the compound microscope may or may not be used to demonstrate such cellular structures as root-hairs and the epidermal cells from which they grow, and the cells of the leaf that bear chlorophyll. In this way an idea of magnification and its use is introduced. When so introduced, I believe it as simple a matter for students to learn the proper place and use of the microscope as it is to learn the same things regarding balances in a physical or chemical laboratory. So introduced, apparatus becomes, not an end, but means to an end. The student realizes that the microscope as well as other laboratory apparatus is designed to assist in extending and making more efficient his own powers of observation.

Following the introduction of the two general problems of plants, as outlined above, one of three more or less popular plans of courses may be used: first, continuing the physiological experiments and introducing with them considerable ecological work, making the course into that which is ordinarily known as a course in ecology; secondly, considering various aspects of the flowering plants, perhaps closing the course with an extremely brief survey of the lower groups; thirdly, considering the groups in the order of their complexity, ranging from lowest to highest.

Each of these three plans of courses should be tested from the view-point of the values to be sought, as outlined in the second section of this paper. The first or ecological course offers ample opportunity in a study of functions of plants, but

unfortunately, if this study is continued for any considerable length of time, the student finds himself limited because of his lack of knowledge of organs of plants further than the most obvious ones of the plants he has seen all his life. It seems folly to try to study the adaptations of an organ before we have knowledge of what the organ is.. At this point the work must become morphological for a time, else conclusion as to functions must be based on insufficient data, hence unscientific. It would seem that any detailed study of the adjustments of plants as a topic in itself should succeed some study of what the plants are. In the best thinking, I believe, we do not make comparisons until we obtain some notions of at least one of the two or more things compared. Logically, it seems to me, after having a general notion as to plant problems, our beginners study structures, and, as they study them, interpret them in the light of their work. Following this comes comparison of these structures with others, and interpretation of the others by means of the facts learned concerning the first group. It is possible definitely to organize this course, but there is considerable doubt as to whether it is possible so to organize it that the beginner will develop the scientific method of thinking so well as will be true if a knowledge of the structures with which he deals should precede detailed work of this sort.

From this course little notion of the evolution of the plant kingdom can be obtained by a beginner, since rather specialized phases of evolution are presented. It is true that if much morphological work is done in connection with the course, some of the simpler phases of evolution of structure may be well presented.

The second plan for a course of study must necessarily present the morphology of seed plants without the vantage ground of knowledge of other groups found below. From a functional and from an evolutionary point of view, is it not far more difficult to understand the structures of seed plants without a knowledge of lower groups, than it is to encounter the much-heralded difficulties associated with a study of the lower groups? From the very nature of the plan of this course, it cannot be logi-

cally organized, and most of the plans presented for such a course attempt no unifying organization for the whole, but present a series of isolated topics. This being true, it would seem that the best educational values cannot come from this course. The plan is the one which, in my opinion, should prevail in the work of the grades.

The third plan should not be a course in morphology, but, from the nature of the subject, morphological considerations should determine the organization of the course. In use of such a plan, organs are always to be looked upon as means of accomplishing work. The gradual stages through which these organs differentiate and become more perfectly adjusted to specific problems are subjects of interest. The comparison of the ways in which plants in various groups, through differentiation of structures, relate themselves to their nutrition and reproduction seems to me to make the best basis for development of the more important values to be had from a course in botany. The student cannot be said to be educated in any sense until he has some facility in detecting likeness and differences. This sort of study, it seems to me, offers the best means of developing this faculty.

Such a course presents the type of working plant body found in each group, and as much of the specialization in the group as time will permit. Physiological, ecological, and classificatory considerations cannot be omitted from such a course, if our basis of nutrition and reproduction, and necessary knowledge of names of type-forms, is kept in mind. The structural element becomes merely the organizing feature of the course, and no less attention is given to real plant work than is true in the course first considered. The entire course, including whatever it may of structure, ecology, physiology, economic uses, etc., becomes an organized unit arranged in the logical order of the plant kingdom itself. I have had some experience with high-school pupils brought up botanically upon the study of disconnected topics having to do with seed plants. Some of them have good notions about some of these topics, but they do not have an adequate conception of the problems or structures of the plant kingdom as a whole. To me a course based upon isolated topics within the seed plants is

like constructing the second story of a house in the position it should occupy, without having the first story, or even any scaffolding. I can see however, how it is entirely possible to construct this second story, and afterwards elevate it to its proper position by building the first story under it. Such a procedure botanically is not uncommon, but must occasion some loss of energy.

I realize that numerous objections may be made against this course I am advocating. It often is represented by work in nothing except pure morphology and anatomy. It is easier for teachers to keep pupils busy in pure morphology and anatomy, or in classification, than in a course that adequately represents botany; consequently the course sometimes suffers such a fate.

Another objection often made is that beginning students, being new to the laboratory and its apparatus, are bewildered by these, together with the additional strangeness of observing plants that must be seen with the microscope. There is an element of truth in the objection, and some time and careful direction are necessary to obviate this disadvantage and establish with the students the proper point of view relative to laboratory apparatus. During the present school year a boy of fifteen said, among other things, in answer to a question as to the work he is doing: "I have botany three days a week and laboratory two days a week." Too often this condition exists; it is not made clear that the laboratory is merely a device for pushing back a little our limitations in observation. But that there needs to be no trouble of this kind for more than one or two days I have seen demonstrated again and again. The teacher sometimes fails to recognize that boys and girls of high-school age cannot be turned loose in a laboratory and expected unassisted to relate themselves to apparatus, as college students might do under similar circumstances.

Furthermore, much of this early laboratory work in many high schools must be of the nature of demonstration work, and thus remove from the student some of the manipulation of material. I do not believe it advisable to remove a great deal of this handling of material, since one of the best immediate results of the laboratory comes from learning to handle materials in a neat and definite way, so as to obtain proper results.

Another objection often presented against this plan of course is that it is hard, and numerous plans have been introduced purporting to give a course that will be much simpler for the student, and incidentally for the teacher too; and I do not doubt that they are so. If the same values can be had from a simpler course, all would readily adopt it; but such does not seem true. The simple courses uniformly consider, in the main, isolated topics illustrated in the highest groups of plants. That the course here advocated is more difficult is not an argument against it. Hard work develops strength. A real knowledge of the scientific method of thinking, of the essential principles of plant life, real culture, comes only through hard work. And I firmly believe that more will be done for high-school students by subjecting them to such a logical, definitely organized course, involving all the leading fields of plant study, teaching the relative evolution of plants of various groups from the points of view of structure, ecology, and physiology combined. The course is one in botany, not one in any specialized field of botany.

Professor B. P. Colton, of the State Normal School at Normal, read a paper from the standpoint of zoölogy, upon

THE PHASES OF ZOÖLOGY THAT NEED TO BE EMPHASIZED IN SECONDARY EDUCATION.

1. We must teach by means of types. We wish the student to get a good general knowledge of the animal kingdom as a whole. From the bewildering array of animals presented by nature the teacher must select a few forms as representatives. From the knowledge gained from these type-forms the student proceeds to reading about related forms. That is, on the basis of real knowledge, gained from actual study of the type, he builds a structure of information through reading and hearsay. This proceeding is based on the doctrine that real knowledge comes only through the senses, and that what we get in other ways is information rather than knowledge. Or, to put it in another way, the knowledge of the type is a peg firmly driven

into a wall, on which much information may be hung. Without this support information falls to the ground; or, going back to the former figure, no superstructure can be reared except on a solid foundation.

Such a system of type-study has become widely adopted. It is the outcome of the plan introduced by Huxley, and the book that first set forth this scheme was the *Practical Biology* of Huxley and Martin. But the trouble with the type-system, as ordinarily followed, is that it often stops short with the study of anatomy, including perhaps microscopic anatomy.

2. We must study these types as *living things*. Their life-processes must be studied as well as their structures. I am not advocating the neglect of the study of structure. Nothing can take the place of such study. No one can understand the working of any machine without having at least a fair knowledge of its structure; and this must be first-hand knowledge. No mere reading will suffice, no matter how well illustrated. Neither will demonstration by the teacher serve as a full equivalent for dissection by the student himself. Of course there are many occasions when it will be advisable for the teacher to do the work of dissection, or to resort to models or even to charts. But nothing can take the place of the actual dissection of the type-forms by each individual student, under the close supervision of the experienced teacher. But the physiology of each type should be studied as carefully as its anatomy. Indeed, it is the chief purpose of the study of anatomy that one may understand the work of each part, and how the mechanism, as a whole, operates. Biology is the study of life; but far too often we have made it a study of death.

It is evident that there are many difficulties in the way of such study. Many of the life-processes are still ill understood, even in the animals most favorable to study and on which most time has been spent. Probably much of our animal physiology is far too largely based on what we think we know of human physiology. But this does not excuse us from the task before us. There are especial difficulties in the way of studying the life-processes of animals as we find them in the field. Their

natural shyness, and the various means they have of concealment and escape, present almost insuperable obstacles. It is often exceedingly difficult to see the animals themselves, to say nothing of the effort to learn how they "live and move and have their being." We must bring them into the laboratory. While their surroundings will be more or less artificial, this will not make any essential difference in the physiological processes. A frog will breathe in the same way when in a glass jar as he would in a pond, and the chances of seeing how he does this are greatly increased by confining him within transparent walls. So the study of animal physiology must be largely confined to the laboratory. Cages and aquariums must be provided. We must endeavor to imitate their natural surroundings so far as possible; in other words, we must make them feel at home, yet in such conditions that we may watch them. Thus we may learn how they jump or swim, what and how they eat, how they breathe, how they are affected by heat and cold, light, sound, touch, etc.

3. Not only must the life of an animal be studied, but its life in relation to its natural surroundings. Its colors in relation to the colors of its environment must be closely noted. Its effects on the plants or animals on which it feeds must be observed and carefully considered. Its enemies and its mode of protection, concealment, or escape must be patiently discovered. To learn all these things, we must resort to field study. The natural surroundings can be learned only by observation of the animal in its own home. Many of these points would pass undiscovered after any amount of laboratory study. For instance, most people find it difficult to see a fish when looking down into the water, even after its location is pointed out by the experienced observer. The color of its back so closely matches the muddy or sandy bottom that only those who develop the keen sight of a kingfisher, heron, or fish hawk discover it.

The hunter and the fisher, if successful, are so because of close field study. Their methods, perhaps not their spirit, are to be commended. Substituting the camera for the gun, the field student will do well to imitate the dress and method of approach of the skilful sportsman. In hunting deer perhaps the

best single rule is "see the deer before the deer sees you." So, if one can approach, unobserved, any animal close enough to observe its natural actions, he is master of the situation. Some animals have little timidity, but others will tax to the utmost the skill and patience of the observer. Since many of the animals that are preyed upon are constantly on the watch, even the sense of hearing never going to sleep, it is indeed a triumph to gain near approach, and one who can get a good photograph of such an animal may congratulate himself on his success, and claim that he has "beat the animal at his own game."

I am well aware of the difficulties in the way of field study. In the first place, it costs money to get into the field. Even in the country schools—I mean the high schools of towns and smaller cities—it involves expense to get out into desirable territory. Of course, some observations may be made on such forms as insects and birds, and occasionally various other forms; but most animals avoid civilization, and dislike too dense a population. In my own school we are ten miles from any considerable stream. Hence it is difficult to make much field study of fishes, clams, crayfishes, water birds, etc. Then, too, it takes too much time to make the desired number of observations. Many pupils have home work that occupies most of their spare time on afternoons and Saturdays. Some pupils have leisure, and some have conveyances by which they can get out into the country, but these are exceptions.

But, in spite of all these difficulties, we should aim to have each student do some field work. Work may be assigned to each pupil according to his opportunity.

As often as possible the teacher should have Saturday excursions, and go with his class and teach them what to look for and how to observe, how to approach animals without frightening them, and show by example how all this is to be done. Van Dyke says that the still-hunter's cardinal virtue is patience. So also the student of live animals must take as his motto, "Patience." Quiet watching often brings better results than industrious tramping. One needs to learn what Charles Dudley Warner calls "the art of sitting on a log." The field-glass puts one nearer his game without alarming it.

In this connection each pupil should read some such books as those of Abbott, Burroughs, or Olive Thorne Miller, to get hints on how much may be learned by patient watching combined with good headwork in outwitting shy creatures.

I am not sure that I can see why the city teacher cannot organize Saturday field excursions almost as well as many of the country teachers. My own classes go two or three times a year at least twenty miles by rail. With all the suburban service and the excellent collecting ground around the city, the chances are almost equally favorable. Be that as it may, the city teacher has one very great advantage in having easy access to a splendid museum and a good zoölogical garden, which perhaps more than offset any disadvantages of his situation.

4. I am not unmindful of the fact that what is known as "systematic work" has been very greatly neglected of late years. In fact, in many quarters it is looked upon with profound contempt. It is a well-known fact, however, that most students who have taken the traditional course in biology find themselves almost lost when they go into the woods or fields. They are among strangers. It is no wonder that they feel lonely in such a situation unless they have human companionship. Even in the country schools the children know only a small part of the animals of their neighborhood. There ought to be frequent use of some such book as Jordan's *Manual of the Vertebrates*.

During the past year I chanced to spend a day in the woods with a teacher of biology, trained in the usual laboratory methods of type-study. He seemed little acquainted with nature. Not having had an introduction, he was ill at ease in the throng of nature's assembly. He knew only ameba and spirogyra, hydra, and marchantia, etc., and they were not present in conspicuous numbers. They did not appear on the committee of welcome. He did not appear to know the beautiful asters and golden-rods, the sociable hazel bushes, nor the magnificent oaks. Perhaps he flattered himself that he recognized only a few of the select. Some minds think they get more by being very exclusive. They dread to appear familiar with the commonplace. The condition of such closet naturalists recalls the well-known adage: "If you

study nature indoors, when you go outdoors you cannot find her."

5. The reading of a book on animal ecology is not zoölogy. I am firmly of the opinion that it is a mistake to have animal ecology precede a study of animal forms and structures. Ecology is a study of the relations of organisms to their surroundings. These relations cannot well be studied until we know the form itself. And the best time to study the relations is soon after becoming acquainted with the animal, while the facts of its form and structure are still fresh in mind. If the work in ecology lag too far behind, the thing to which we wish to find relations has become dim and the relations are not distinct. Ecology should not be massed. It should be distributed through a course in zoölogy. As each form is studied, its place in the world of nature should be considered; how it affects other living beings, and how other living beings affect it; how the external physical conditions act upon it, and how it reacts upon the earth, water, and air on and in which it lives. In my opinion, a good text on animal ecology should be at hand during a course of study in zoölogy, and constantly used as collateral reading in connection with each group or each animal form taken up.

When studying insects, the student continually finds adaptations, such as the protective resemblance of the walking stick to a twig, of the katydid to a leaf, of the butterfly to flowers, of the grasshopper to leaves or soil. He finds many cases of parasitism, and can draw his own conclusions as to the effect of such a life on the animal itself. He finds numerous examples of protective resemblance, and the uses of colors among animals is a never-ending problem of interest. Everywhere he finds the struggle for existence and adaptation to surroundings. Probably, if left to his own observations, he would have a very narrow view of such a subject as the geographical distribution, and he will do well to read on all these topics. The point I wish to urge is that the *beginnings* of such study be based on his own observations. Thus it is real, and may widen out from himself as a center.

Mere reading of ecology is like reading *about* animals; it has no substantial basis. Recall the fable of Antæus, and how he

retained his strength so long as he kept his feet upon earth. Much of our study is more like the paintings of angels in the Middle Ages; human feet paddle the air, or wade through clouds, of no more use than the false wings, tacked on without any backing of muscular machinery. So the student grows weak unless he can trace his theories and general laws to observed facts of his own acquisition.

6. Another phase of zoölogy should also be emphasized, namely, the practical. This is a practical age, and more is demanded of the high school in this line than ever before; in fact, we have a pressing demand for the commercial high school. So we have manual training and domestic science. The botany and zoölogy of the high school ought to have some bearing on the affairs of everyday life. Even if there were no demand for practical results of the science teaching in the high school, it is surely true that zoölogy ought to enable the student to understand more fully something of his relations to the world of animal life. He ought to know something of the insects that destroy the crops of farm and garden. He ought to know how these insects do the damage; he should know their life-histories; in what stage of their development they are injurious. He should be familiar with the common means of combating them, such as spraying, fumigating, etc. He should know something of the care of bees, of the rearing of the silk-worm, of the danger from insects to furs and museum specimens, and the remedies for these troubles. Also the exceeding value of insects in carrying pollen, and effecting cross-fertilization. He should learn the value of most birds to man, in destroying insects. He should learn the food value of fishes, and the facts about the artificial propagation of fishes as shown by the reports of the various fish commissions. He should learn of the process of catching, canning, or otherwise preserving fish and fish products. The discovery of the relation of flies and mosquitoes to disease is one of the later triumphs of modern science. Of these discoveries high-school students should not remain ignorant. The various food preparations from the mammals, such as beef and pork, tallow and lard, hides, hair, glue, and so forth, as well as

the dairy products; and the relation of milk to disease should be at least touched upon. The wool industry, the pearl-button manufacture, and numerous other industries should be made subject-matter of reading, and as much investigation as local establishments will permit.

Two of the main tests of the utility of knowledge are, first, its application in supplying the needs of daily life; and, second, its application in explaining the phenomena of our ever-recurring experience. If the study has taken any hold of the individual, it certainly ought to be available in application to his contact with the facts as he meets them in the world of everyday life. It is not what we can say in the class-room, but what interpretation we are enabled to put upon the phenomena of life-processes as we meet them in our daily walk, and especially what use we can make of them in bettering the condition of life and making life more full of meaning.

7. Although the practical value of these studies is great, if they are rightly conducted, we must not overlook the fact that running through it all we should keep sight of the educational value that ought to be derived from the study. The study of the relations of animals to their surroundings is a constant investigation of cause. The student must ask why an animal has a certain color, form, or habit. He must first learn to observe the facts that come within the range of his experience. Next, he must seek an explanation of these facts. He must become possessed by the idea that every fact has a meaning, and that it is worth his while to think out this meaning. At first he is to be helped; but he should soon learn that he must rely mainly on himself for the solution of most of the problems of animal life. Many of these problems are simple problems in mechanics, such as the question of how the clam opens and shuts its shell. These mechanical problems may be found of all degrees of complexity, from that of the crawling of an earthworm to that of the flight of a bird—a problem that the scientists are still trying to solve, at least in its practical application. But, aside from such problems of motion and locomotion, perhaps the most interesting problems cluster around the word "adaptation."

Here we find a never-ending variety and a source of never-failing interest.

It is sometimes objected that such problems have little value because many of them cannot be answered with exactness, like problems of physics or mathematics. Just herein lies their special value. They teach the student to look for hidden factors and undiscovered conditions which vary the results, and he is prepared in some degree to attempt the solution of social and economic problems, which always have a variable answer because of the uncertainties that are involved wherever we have to deal with problems that concern life. We must constantly cultivate the habit of interpretation, and so train the student that this power shall be developed to a high degree. The world is full of meaning and beauty to those who have the eye and the mind to see it. The fall of the apple suggests to a pig merely the gratification of an appetite; to Newton it suggested the universal law of gravitation. Probably the pig saw the apple as clearly as did the philosopher. Insight was lacking. It is not so much the power of observation that needs cultivation as the power of reflection. We must remove the scales from the mind's eye.

Undoubtedly we must do more than we have done to teach the boys and girls to earn a living. But we must do something more and higher than this: we must teach them how to *live*. As I visit the homes of the humble, or those living in the country, I am not so much impressed by their poverty of worldly goods, though in some places there is somewhat of scantiness. But many, many times have I been impressed with the mental poverty. The barrenness of mind is appalling. While the schools are not wholly responsible for this mental poverty, I hold that the schools are responsible for its continuance. We can open the mind to the light of the intellectual life, and lead to a grasping of something of the meanings of things in the world, and thus make rich and fertile what was an arid waste.

To anatomy we must add physiology, and to this natural history and ecology. We must contemplate, not dry bones, but *life*—life in its fulness and the richness of its many-sided relationships. Not that we are to omit anatomy, though perhaps we

may get along with less of it. "These things ought ye to have done and not to leave the other undone."

Huxley is not responsible for the fact that our courses in biology have been narrow and narrowing. To show his broad view of the subject let me, in closing, quote him:

> To a person uninstructed in natural history a stroll in the country or by the seaside is like a walk through a gallery filled with wonderful works of art nine-tenths of which have their faces turned toward the wall. Teach him something of natural history, and you put into his hand a catalogue of those worth turning around. Surely our innocent pleasures are not so abundant in this life that we can afford to throw away this, or any other, source of them.

Following is an abstract of the paper of Professor Wilbur S. Jackman, of the University of Chicago, upon the subject:

WHAT SHOULD BE EMPHASIZED IN TEACHING BIOLOGY?

Within the lifetime of biology teachers now living the methods of teaching the subject have completely changed. It has not been many years since books like Orton's text-book in zoölogy, used mainly as a reader, furnished the basis for most of the work done even in some colleges. Just as the sciences of chemistry and astronomy were revolutionized, respectively, by the discoveries of Lavoisier and Copernicus, so the work of Darwin began a new era in the teaching of biology. The text-book as a reader was discarded, to be succeeded by the laboratory manual and the scientific treatise. These books were valuable in detailing the minutiæ of method and in showing the form which the results of observation should take. Neither book concerned itself with either the purpose of the study or the breadth of outlook, and the slavish use of the manual has made biology, to speak by paradox, a lifeless study.

Progress in the study of plants and animals in their wider relationships has been retarded by the ancient custom of giving to the studies of botany and zoölogy a tandem presentation; that is, one preceding the other. It is now pretty clearly recognized that any science, socalled, may serve to introduce the student to nature, and that no one study can do more than offer an introduction. The subject of ecology now undertakes to work out the social relations of living things under normal conditions. The application of its principles may be made by the mature student or by the beginner.

Questions relating to material and method in biology are now treated with intelligence and skill, but the question of motive has scarcely been touched. The position of natural science in the lower schools is still tentative, because its mission in the minds of most teachers is still problematical. In answering

the question, "What can science do to make a pupil more upright and more moral generally?" the science teachers have not been as clear and direct in their reply as the teachers of the humanities, socalled, have been in answering the same question when asked concerning their subjects. The latter are always ready to show how the dealings between men become the basis of moral instruction; but the science teacher finds it difficult to point to the same result in his lessons on the crayfish or grasshopper.

In the pre-Darwinian period, plants and animals were studied largely from the side of their usefulness to man. Darwin's story attracted the common mind by the portrayal of many "novelties" in living forms that had not been observed before. The use in sense-training, accuracy, the economic value, and the effect of the study of nature as the embodiment of pure truth, all have been urged, and rightly, as true reasons for the study of science. But most of these reasons apply equally well to everything else that is studied. To most people they, at best, but indirectly answer the question as to the effect of science-teaching upon the development of moral character.

It would seem that until some common ground can be reached upon which the two great divisions of human learning, science and the humanities, may rest, we shall always find the parts of our curriculum at cross-purposes. In times past, both of these two branches of knowledge were used to support dogmas that were often summed up in the form of a creed. With the advent of Darwinism, men of science broke loose from creed bondage and began to look for the facts regardless of their significance. In thus divesting themselves of every ulterior purpose in the study of nature, it is not strange that people should get the impression that the facts of science have no significance in the lives of men. In the past the anxiety to identify the facts of nature with selfish human interests led to inaccuracy, not to say dishonesty, in observation. As a reaction, many teachers leave the impression that the facts have no significance; hence science becomes a vague or purposeless study for their pupils.

Without desiring to reimpose upon science the task of supporting dogmas in either morals or religion, one may properly consider the advisability of laying more stress upon the significance of the facts of nature in terms of human life. Is not this significance a part of the fact itself? If so, then their pupils should be guided in the search for it.

The humanities have had but little success in teaching lessons of morality, if we may judge by the present political and social status of the race and of individuals, because of their utterly unscientific methods of treatment of the question. In the past the race has been pretty well satisfied if it could only develop the *forms* of morality through either fear of punishment or hope of reward, or through imitation. Science, however, must go deeper than form. It regards the moral relations as expressing the highest and the most delicate concessions and adaptations that are known to intelligence. The lesson of concession and adaptation is taught by both the roadside weed and the glorified

soul that at once sacrifices and saves itself for the weak and unfortunate. To recognize this lesson in either or in both means moral development, and life—physical, mental, and moral. Failure to recognize it means death—annihilation. This is the ground of the new morality upon which the humanities themselves must stand; supported by modern science as well as by the humanities, this ground will furnish the soil from which the ethical code of the twentieth century will grow.

DEPARTMENTAL CONFERENCES.

ENGLISH.

The English Conference was devoted to the discussion of the report of the Committee on Entrance Requirements in English which had presented its report on Friday to the Executive Conference of Deans and Principals. This report was as follows:

In view of the following facts: (*a*) that the University of Chicago gives less credit for English than the large majority of American colleges; (*b*) that nearly all of the schools affiliated or co-operating with the University require at least three full years of work in English, and in many cases four years; (*c*) that the course of study in English in the larger and better schools has come to have the definiteness and seriousness of courses in other subjects, with increased efficiency in results obtained (as shown in the work of students in the Junior Colleges)—therefore the committee recommends:

1. That three units of credit be allowed for English to graduates of schools where at least three full years of English form a part of the curriculum.

2. That the three units of credit be distributed as follows: Elementary Composition (including grammar, spelling, punctuation, and the reading of English classics in what is known as the "general list")—*one unit;* Literature—the study of the English classics (what is commonly known as the list for "intensive reading"), and an outline of the chief periods of the history of English literature, following the classics studied—*one unit;* Composition and Rhetoric (including the subjects of sentence formation, paragraph structure, kinds of composition, diction, usage—namely, such topics as are covered by standard modern text-books, such as Carpenter, *Elements of Rhetoric;* Herrick and Damon, *Composition and Rhetoric for Schools;* Lewis, *Second Manual of Composition;* Scott and Denny, *Composition-Rhetoric;* or any text of similar grade)—*one unit.*

It is understood that the three units represent approximately one-half work in English literature, and one-half in rhetoric and English composition. Further, it is understood that the division of the units by topics does not imply a corresponding division in the teaching of the subject, or a corresponding order in their treatment of the various topics included in English.

ROBERT HERRICK, *Chairman;* NOTT FLINT, E. H. LEWIS, ELEANOR QUINN, in attendance and approving this report.

In discussion of this report Professor E. H. Lewis, of Lewis Institute, presented the following paper:

TIME REQUIREMENTS IN THE ENGLISH UNITS.

Time requirements in the English units is the subject first before us. It has been recommended to the University to allow a total of three entrance units for English, and the work has roughly been outlined by the Committee of Five. The committee rather assumed that you would be glad of the extra credit. But what is an entrance unit? The University defines it as "not less than 150 hours of prepared work." We know very well that the spirit of the University is to ask for powers rather than for hours. But it seems inconsistent to specify hours of recitation without specifying hours of preparation. In one academy known to you all a first-year student is required to spend 100 minutes daily on his English; in another, only 30 minutes. In the one academy he carries three subjects; in the other, four. It is clear that a third of the student's time is more valuable than a fourth, perhaps more valuable even than the ratio of three to four would indicate.

I should be glad to see the definition of the unit completed, and completed in terms of hours. And it would be an important addition to education as a science if competent medical advice were taken as to how much work—not reverie, but intense application—may be required with propriety of the average boy of fifteen, sixteen, seventeen, eighteen. It is extremely easy to dismiss this whole topic with vague references to the varying nervous power of students. But the requirements of 150 hours of recitation and 15 units for admission are not vague; they are so definite that they imply a definite conviction as to what a boy can do. There are university men who believe that an average boy of fifteen can give intense attention to books for eight or nine hours a day. Personally I do not believe that he can do so without injuring his health. Also, in the case of boys who have been forced through a preparatory course of four years, giving eight hours a day to books, I think I see a certain intellectual rawness; an inability to reason and ponder; a mental weariness

which precludes much traveling out of the beaten paths of memory. At all events, it is a mistake to suppose that these questions can be dismissed by educators, however weary educators may be from their own multifarious mental exertions.

I think the "average" boy needs three full years—not less than thirty weeks each year—and two hours a day of study, counting preparation and recitation, in order to meet the entrance requirements in English. Whether you can get that two hours a day is a question. Your pupils who go to college must present fifteen units for admission.

In any case, I hope we shall not feel free to sacrifice spelling and correct oral usage. There is in the air a spirit of foolish skepticism as to these subjects. They tell us that good spellers are born, not made. They tell us that the influence of home and street will make some of our students ungrammatical to the end of the chapter. This spirit must either be resisted or we must resign the name of teachers of English. Teachers of literature we may be, if we fail to resist, but surely not teachers of English.

Let us suppose that on a given day you had to choose between two tasks. Let one be that of curing a youth of saying, "I would have went"—an expression that I heard yesterday from the lips of a man in college. The task would be hard; it would require ingenuity in devising drill-exercises that would set up a new habit, and it would require patience in execution. No one day would be enough. Let the other task be to teach the same youth the moral significance of that passage in *Macbeth* which concerns the cure of a mind diseased. You remember the passage. It is a noble and solemn one, and it lays bare the secret of the human will, the responsibility of the will to govern even thought. Few single passages in Shakespeare would be of so great and so permanent value to the youth as this. By the hypothesis, time is lacking for both tasks. I am clear in my own mind that it would be the teacher's duty to give the drill. If we were ingenious enough to turn the passage to some account, and make the patient feel the need of ministering to himself, so much the better. There would be a great sacrifice at best; and yet I think it ought to be made, if necessary.

So great a sacrifice need not, in most schools, ever be made. But lesser ones will have to be made, if our students are to spell correctly and talk grammatically. I have in my pocket proofs that a considerable proportion of Chicago students who go to college are unable to spell with certainty such words as *riding*, *hoping*, *sloping*, and *shamming*. I am ashamed to mention this fact, for it strikes home to my own department.

We are a body of teachers who have assumed great responsibilities; we are confronted by numerous and confusing duties. Let us do what we can to simplify our task. We may as well abandon the vain hope that teachers in other departments are going to devote much attention to spelling and oral usage. They will do something, will do more and more in the best schools. But they will not eradicate long-established habits. In the present condition of things, to do that is very definitely one of our tasks.

DEPARTMENTAL CONFERENCES.

GEOGRAPHY.

Mr. J. Paul Goode, of the University of Chicago, discussed

THE FUNCTION OF MAP-DRAWING IN THE TEACHING OF GEOGRAPHY.

We draw maps because (1) geography deals primarily with space-relation, and all record comes sooner or later to a distribution in a map; (2) "the place for the atlas is in the head," *i. e.*, we need definite mental pictures of the map, at least of the fundamentals of space-relation; (3) the study of the essentials, and the exercise of the muscles in reproducing the form, train the attention and fix a clear mental image.

The style of map-drawing varies with the purpose for which the map is wanted, and ranges from the rapidly drawn sketch map to the refined mathematical construction, where accuracy of detail is all-important.

In the rapid free-hand drawing the prime requisites are, first, accuracy in fundamentals, that is, in the gross generalization of the details of outline and trend, or, in other words, the reduction of the map to its lowest terms; and, second, speed in drawing. A map so drawn is the shorthand of geography. These principles, applied to the continents, give outlines so simple as to be as easily made as any six letters in the Roman alphabet. These simple forms, and the space-relations represented in them, are as fundamental as the paradigm in a language, and should be drilled on in the same way.

The second style of drawing is the careful, studied blackboard work in which days are spent on a single map. The value of such work is openly questioned. The time might be better spent in the library or in the field.

The third method of map-drawing puts the emphasis on the

representation of the third dimension. The simplest phase is where a single contour is drawn; for example, the thousand-foot level, the lands below and above it being tinted in. This is very simple, can be done with extreme rapidity, and has the highest value for the representation of the largest areas. A more difficult phase of representation is by hachures, or shading —the so-called "relief modeling," lying on the borderland between a map and a picture. This is qualitative, and is of high value in physiography and in the study of the fine detail of relief; but its value decreases very rapidly with the increase in the area represented, and in continents it may easily teach larger untruth than truth. It is inferior in the representation of exact altitude and slope values, and may cost so much time and effort as to be a questionable luxury.

A fourth style is the careful, accurate mechanical drafting. This is quantitative, and of the highest value in cultivating the hand and the head. Cross-sections are drawn to scale, stereograms to show structure, various diagrams to illustrate the work in hand, or distributions shown in carefully made maps. Such drawing calls for unlimited skill and taste, and is the best of training in the appreciation of the fine and artistic in maps.

The subject was further discussed by Mr. Frank W. Darling, of the Chicago Normal School:

> The subject-matter of geography arranges itself into a natural causal order. The most causal and most basal is the physical factor, upon which closely depend the climatic conditions; these largely determine the productive resources; and upon these three depend the industrial forces. The social and political organization and location of centers respectively are the effects of the preceding factors. Throughout this enumeration no one factor is as influential a determining cause of each of the others as is the physical factor. It follows that, in order properly to teach the geography of any region, the student must be thoroughly acquainted with the topography of that region.
>
> Though political or outline maps may represent to a skilled student something of the topography of the interior, yet they are as far from conveying any such idea to the child as would be a description of the region in shorthand.
>
> For years we have attempted to teach geography by using the most indefinite symbols of the region, the political map—a mere outline with highly colored arbitrary divisions, a symbol reduced to a hieroglyph. How

much of a causal basis can the child obtain from this? Everything which he learns of that region must stand in his memory alone, without a foundation of reason. One of the educational crimes which have gone hand in hand with the old formal teaching was the failure to give a definite image, for a base, upon which the child could build. One of the indications of the contempt in which representation of topography has been held is the absence of any good maps of American publication. At present the complaint of teachers, who see the need of giving the child a definite conception of the topography, is that they can get no relief representations. Yet a well-prepared teacher has all that is really necessary. By a sand model the child may be given, not an accurate, detailed expression of the region, but a true caricature, and as such representing the character of the region. By chalk-modeling a more detailed topographic map may be made. The children can easily master this form of expression, if they begin it with their first geography study. The drawing of the political map should come as the last representation of the region, and should be interpreted by the topographic representation. This same principle is just as true when applied to the representation of land forms in the study of physical geography in the high school or college. We are so often blinded by our own clear conception of a land form that we fail to give the child any definite representation which should come by actual observation of the thing itself, or its representation in miniature showing the third dimension, or at least a definite projection of its third dimension by chalk-modeling or some equally graphic representation.

Finally, in order that the student may obtain a definite working conception, he must reproduce it by some definite form of expression.

DEPARTMENTAL CONFERENCES.

GERMAN.

The chairman, Assistant Professor Kern, of the University of Chicago, opened the meeting with the request that topics for the next conference be sent in before the end of the school year. After shortly discussing the two lists of books prescribed for third-year reading, as given on p. 67 of the last *Annual Register*, he asked for suggestions for the list of 1905–6. Associate Professor von Klenze spoke on the desirability of annual reports on publications of interest to teachers of German. A committee of five was appointed for the coming year, consisting of Dr. Kern (chairman), Mrs. Therese T. Dillon (Chicago Normal School), Miss Josephine C. Doniat (Lyons Township High School, Ill.), Mrs. Amanda Gimbel (William McKinley High School, Chicago), and Dr. George A. Mulfinger (South Division High School, Chicago). In November, 1904, it will report on current numbers of the following journals:

(1) *Zeitschrift für den deutschen Unterricht*, herausgegeben von Professor Dr. Otto Lyon, Leipzig, Teubner'scher Verlag; (2) *Zeitschrift des allgemeinen deutschen Sprachvereins*, herausgegeben von Dr. Oskar Streicher, Verlag des allgemeinen deutschen Sprachvereins (F. Berggold), Berlin; (3) *Neuphilologisches Centralblatt*, Organ der Vereine für neuere Sprachen in Deutschland, herausgegeben von Dr. W. Kasten, Hannover; (4) *Euphorion*, Zeitschrift für Literaturgeschichte, herausgegeben von August Sauer, Leipzig und Wien, Carl Fromme's Verlag.

"The International Correspondence of Pupils" was the program announced for the afternoon.

INTERNATIONAL CORRESPONDENCE OF PUPILS.

ITS HISTORY, PURPOSE, AND MANAGEMENT.

JOSEPHINE C. DONIAT,
Lyons Township High School.

This age of scientific research and scientific results, when people at opposite ends of the globe are in closer communication

with one another than was once possible between the inhabitants of neighboring towns, very naturally gives rise to such a movement as the "International Correspondence of Pupils."

It is impossible to tell just when and where the first suggestion was made. In England there were corresponding societies as much as twenty years ago. The members were for the most part young business men who realized the practicability of this means of gaining mastery of a foreign tongue. The International Correspondence Association, founded 1889 by Dr. Kretschmar in Germany, was of a similar nature.

Some ten or twelve years ago certain progressive teachers of modern languages realized the pedagogical value of foreign correspondence for their pupils and introduced it into their schools. But these spasmodic efforts were only the straws that showed which way the wind was blowing. For instance, Miss E. N. Lawrence, the assistant of Mr. W. T. Stead, of the *Review of Reviews*, says, she once had three pupils and managed to get the addresses of a teacher and her pupils in a foreign country, and all of them carried on for a number of years a correspondence which proved to be most interesting and instructive. In Germany we find schools introducing it as early as 1893—one school in Berlin, one in Mannheim, one in Annaberg, and one in Weimar at the Realgymnasium. Here Dr. Markscheffel arranged with two French teachers who were visiting there to have his pupils correspond with theirs. But it was left to France to systematize the movement. It had been carried on successfully from the year 1892 at Chartres, and especially at Draguignan under the direction of Professor Paul Mieille, then teacher of English there, now professor at the Lycée in Tarbes. He was surprised not to find more enthusiasm for English among his pupils, and in seeking to explain their indifference he came to the following conclusion: The pupils do not feel the pulsation of life in the foreign language. The vocabularies seem to them to be so many corpses, empty shells. But the words surely have life, intense life; one must only be able to discover it. How would it be if we brought our pupils into touch with foreign comrades in order to give them a living, personal feeling for the

real meaning of the words they are studying, their independent life, their energy? If the pupils, instead of translating English into French and *vice versa*, were to write English letters to their comrades and receive English letters from them, would they not be induced, even forced, to see life and vigor where they now see only dead abstractions? Professor Mieille now went to work to find English correspondents for his pupils, and this exchange of letters actually brought an element of life into the class-room that was most interesting and suggestive. After carrying this on for some years, however, his pupils and those in England left school, and the movement threatened to die. Then Professor Mieille decided that, instead of acting in an isolated and individual manner, all the French teachers of foreign languages should unite and invite their foreign colleagues to do the same—thus establishing a kind of vast syndicate of international correspondence. In informing one another of the names of their pupils who were willing and able to correspond, they would solve in the most simple manner the question of recruiting the ranks of correspondence.

In an article published by him, in 1896, in the *Revue universitaire*, entitled "L'Alliance française et les professeurs de langues vivantes," he told his experiences and his plans. The general secretary of the *Revue* was very much interested in the matter and offered to help the movement in every way he could, by printing the lists of names and addresses of those wishing to correspond—thus establishing a center at Paris.

Professor Mieille now wrote to Mr. W. T. Stead, who at once saw the advantages of the plan and showed the letter to Miss Lawrence. As she had already carried out this same idea in her own way, she was immediately interested, and the *Review of Reviews* then agreed to devote a page to printing a list of names, making announcements, etc. This page, entitled "Learning Languages by Letter-Writing," has been edited by Miss Lawrence.

In January, 1897, Professor Mieille published an article in the *Revue universitaire* and a translation of it in the *Review of Reviews*, stating that they would be ready to receive the names

of pupils wishing to take part in international correspondence, if these names were sent by the teachers of modern languages in the schools attended by these pupils. These articles met with a most enthusiastic response. The first announcement brought 200 names. The distribution, however, caused a good deal of work. There were 70 English girls and 30 boys, while the French boys were 100 and the girls 15.

Soon after the establishment of the bureaux in London and Paris, one was opened in Germany by Dr. K. A. Martin Hartmann. In the winter of 1895–96 he had made a trip to France, sent there by the Saxon government. This brought him in contact with a large number of French colleagues. On March 9, 1897, he read a paper, at a meeting of the Leipzig Society for Modern Philology, on the subject, then quite new in Germany (printed in *Deutsche Zeitschrift für ausländisches Unterrichtswesen*, Leipzig, April, 1897). His suggestion to establish a German center for international correspondence was unanimously adopted. The direction of the bureau was intrusted to Dr. Hartmann, and a man better suited to this arduous task could hardly have been found. Through his energy and indefatigable zeal, resting on deepest conviction, he succeeded in defending his theory against attacks of all kinds, and in spreading it in every direction. He was assisted by his relations to numerous colleagues in Germany and other countries, and by his position as an officer of the Saxon and of the German Societies for Modern Philology. The Leipzig center, which soon undertook also to give addresses of adults, students, teachers, and others, has done much for the study of modern languages in Germany and abroad. Besides the task of sifting incoming addresses, Professor Hartmann has helped the work much by various *Rundschreiben* and announcements sent to schools, as well as by articles in *Neuere Sprachen* (Marburg) and other magazines. In this way he was able to explain his theories, to clear up misunderstandings, and to bring about an equalization of supply and demand.

A few months after the establishment of the Leipzig center, in June, 1897, 1,347 German pupils had already been announced, and by the end of the year 1900, 7,426 persons were corresponding.

In America, Professor Jenkins, of the University of Chicago, was, as far as I have been able to discover, the first to introduce it. He had some pupils at Vanderbilt College engaged in correspondence with French "comrades," and he suggested the idea to Professor Magill, who at once introduced it into the French classes of Swarthmore College.

About the same time, an article published by Professor Mouchet, translated by Professor Magill, and printed in the *Education* (Boston), showed forth the principles and advantages of the movement, and caused its introduction into a great many schools and colleges.

In 1898 the attention of the Modern Language Association was directed to it, and a committee was appointed to investigate it. This committee reported favorably, and a center was established at Swarthmore College, with Professor Magill as its head. An article by Professor O. Thiergen, of Dresden, published in the SCHOOL REVIEW (Chicago), 1899, brought a great many requests for addresses from all parts of America to the German center.

Italy and Spain are also becoming interested in this excellent scheme. Even Australia has sent the names of pupils, who are now corresponding with German comrades.

Since March 1, 1901, the movement has had an annual, published in London by W. T. Stead, Professor Mieille, and Professor Hartmann under the threefold title: *Comrades All*, *Annuaire de la correspondance interscolaire*, *Internationaler Schülerbriefwechsel*, and containing contributions from pupils and teachers. The plan for this yearbook was made at the Paris exposition, where Mr. Stead, Miss Lawrence, Professor Mieille, and Professor Hartmann met personally to arrange their work. Unfortunately, as I see from Professor Hartmann's latest report, June, 1903, this publication will be discontinued, as the sale of copies did not cover expenses.

At the International Congress for the Teaching of Modern Languages, in Paris, 1900, the question of international correspondence was discussed, and a resolution was unanimously adopted that the congress, having seen the results obtained by

international correspondence in France, England, Germany, America, and Italy; having heard the favorable opinion of a large number of teachers who have practiced it; and having heard the report of Professor Mieille on the question, expresses the wish that correspondence between French and foreign pupils be definitely admitted in foreign language classes as a means of instruction and an application of the direct method; that the teachers of modern languages be encouraged to practice it, so that the familiar or the business letter may have a place in the final examination, instead of a theme or translation. At the International Congress of Secondary Schools at the Sorbonne, August 3, 1900, on the motion of Professor Hartmann, a similar motion was adopted. These unanimous resolutions were a great moral support for the cause. It is not surprising, therefore, to hear that in subsequent years at meetings of teachers and philology associations in France, Germany, England, Switzerland, Austria, Italy and America international correspondence was found on the program and discussed with interest.

It must be mentioned also that the new French course of study, May 31, 1902, officially recognizes the value of international correspondence in modern language classes.

After this brief sketch of the history of international correspondence, it might be well to see how it is carried on in schools, and for this reason I shall give a few of the most important rules. The teacher of modern languages who assumes the supervision of the correspondence sends the names of pupils, stating age, sex, years in school, length of time studying the foreign language, to the respective centers. The German lists are sent to Professor Hartmann, Fechnerstrasse 2, Leipzig, where they receive immediate attention. (I mailed some lists October 11, and by November 9 six of my pupils had already received German letters.) Requests for addresses of French pupils are sent to the office of the *Review of Reviews*, London.

The first letter is written in the pupil's mother-tongue. After that, pupils alternate between letters in their own and in the foreign language, or they may write each letter half in the one, half in the other language. Most of my pupils have preferred

the latter plan. Mistakes made in the foreign language are carefully corrected by the recipient in his own tongue, and returned with the next letter, and I must say that the skill and accuracy shown in the correction of mistakes were a revelation to me.

The choice of subject is, of course, entirely free, except that religious and political questions are to be avoided.

The frequency of letters is subject to arrangement. For the most part, however, pupils themselves realize that much depends on regularity, and they fix a definite time for writing—some once a month, some every three weeks; some write a letter once a month and send a card in between, so that they hear from each other every two weeks. Illustrated postal cards may be exchanged, but they should always be accompanied by an explanation in the pupil's mother-tongue.

Objections have been raised largely by people who have a vague suspicion, but no actual knowledge of international correspondence. They are far outweighed by the favorable opinions of those who speak from their own experience. Professor Thin, of Aberdeen, Scotland, calls it an excellent help and stimulus. He says that correspondence gives a healthy interchange of views on school matters, customs of the countries, descriptions of towns and places, which cannot but be useful and helpful to the young correspondents. M. Friedrich, director of the Girls' School, Solingen, Germany, says that letters give an insight into the emotional and intellectual life of foreign correspondents, as Americans especially give themselves with charming frankness and show great tendency to self-observation. In his experience the German pupils were superior to their partners in their command of the foreign language, and American, not English, girls excelled the Germans in the elegant command of their mother tongue and the broadness of their horizon.

Perhaps a word from the correspondents themselves might be valuable. In this year's report, published by Professor Hartmann are printed five letters from students who are enthusiastic in praise of the benefits derived from correspondence with French comrades. One of these says that he had never cared

for French, and as a consequence had always been a poor student, dragging himself from class to class in constant fear that French might some day break his neck. He took up correspondence merely for the novelty of the plan and the amusement he expected to get. Gradually, however, his interest in the partner generated an interest in his language, and he made great efforts to read and write it correctly.

Dr. Max Freund, now assistant lecturer for German language and literature, University College, Liverpool, speaks in most enthusiastic terms of his correspondence with a French comrade, which has continued for more than five years. One of the most delightful results of the friendship formed by this correspondence was a vacation spent in the home of his partner, and the French student's visit to his home the following year.

These are only a few of the many testimonials that could be cited in favor of international correspondence.

It seems to me that the linguistic advantages resulting from frequent practice in writing and reading letters with particular interest, in the foreign language, must be apparent to all. To be sure, letters may be written as a class-room exercise, but here an artificial interest must be aroused. The living, personal element is wanting. French or German means infinitely more to a pupil who has a French or a German friend.

But more important even than the linguistic advantage is the element of culture involved in this friendly intercourse. The student gains a fund of information about the manners and customs of the foreign nation, and as he grows to respect and even love his partner, he realizes that foreign modes of life, while they may be different, are not, on that account, inferior to his own.

International correspondence, by bringing about friendship between many individuals among foreign people, promotes international friendships and international peace. To sum it all up, I think international correspondence is a "touch of nature which makes the whole world kin."

INTERNATIONAL CORRESPONDENCE OF PUPILS.

ITS PRESENT STATUS IN GERMANY.

CHARLES GOETTSCH,
The University of Chicago.

In regard to the advantage and pedagogical value of international correspondence, Professor Hartmann, chairman of the central office in Germany, writes in April, 1899:

We have to do simply with the conducting of channels from the great stream of conversation that is going to waste in other countries, into our own country where the foreign language can be cultivated only artificially. Thus the learner is brought into contact with the life of the foreign language. In just this personal relation lies the incentive to learn, which must be evident to everyone who looks into the matter at all. This relation, however, is liable to be underrated by outsiders, because they themselves have not had that experience in their school days. They fail to place themselves in the position of the pupil for whom there is an especial charm, first, in thinking that the foreign language material has been shaped for him and directed to him; secondly, in the opportunity of making practical use of his gathered linguistic knowledge in corresponding with a person just like himself, but who is living in different surroundings. In the letters from a stranger the correspondent soon detects sympathetic chords. Again, this relation is in a high degree adapted to awaken a spirit and love for work in the school; the pupil has an opportunity to give utterance to his personality freely. On the other hand, the pupil's pride is aroused when he writes to his foreign comrade in his own mother-tongue; for it is arranged that he write alternately in his own and in the foreign tongue. When the German student writes in German, he feels proud to act as the teacher of his partner and to think that he has a great opportunity of helping him, thus aiding in spreading his mother-tongue in the distant country. Since this pertains alike to both parties, it follows that out of this incentive, through proper supervision on the part of the school, a great deal of good may come. It is evident that in the hands of incompetent students evils may arise, which, however, may easily be averted by a careful selection of the students for correspondence. Admittance, then, is an honor for which only the best in a class can hope. Those not admitted will be aroused to do their share in upholding the dignity of the school.

Again Professor Hartmann writes in *Pädagogisches Wochenblatt*, June 16, 1897:

By means of this simple arrangement an entirely new source of interest is added to the teaching of modern languages, which promises a great advance in the general knowledge of language. Just the more intimate knowledge of every-day speech enables the student to appreciate the literary

language better. The gain in the knowledge of country, people and national customs brought about by sociable correspondence is no less than the linguistic gain. And is it put too strongly when I say that this activity may become to the teacher a source of great information regarding foreign nations?

Professor Markscheffel, of the Realgymnasium of Weimar, formulates his observations thus far in his *Festrede*, 1903, as follows: (1) International correspondence aids the student in acquiring style and a knowledge of the grammar of the foreign language. (2) It gives practice in reading handwritings in foreign languages. (3) It affords a heap of useful knowledge about the country, people, manners, public opinion, school and family life, which are all different in different countries. (4) It removes prejudices and teaches a respect for other nations, thereby doing away with jingoism. (5) It gives an insight into the thought and soul of the foreign nation. (6) Not only are interesting topics discussed, but landscape cards, stamps, photos, coins, papers, books, etc., are exchanged. (7) It increases the respect and confidence, for the letters soon take on an air of intimacy. Thus advantages come where they were least expected. Professor Markscheffel tells of a Frenchman who came to the University of Leipzig for a semester in order to visit with his German correspondent. (8) It has in it an ideal benefit; mutual relations spring up which have a bearing on the political intercourse. The letters are like friendly handshakings. In place of newspaper attacks there will be mutual confidence, respect, and peaceful competition among nations. For this reason the congress of the friends of peace in Hamburg gave its full sympathy to the idea of foreign correspondence, and urged it especially in such countries as, *e.g.*, Austria and Switzerland, where several languages are spoken. Politics are barred, but if pupils mutually clear up political prejudices and warn each other against false statements made about their countries and people, this sort of politics is commendable.

Although Mr. Markscheffel takes perhaps too ideal a view of the situation, in that it will aid in banishing war, this much can be said, that international correspondence will help to fill the abyss that separates us from a country like Spain.

In regard to the disadvantages, difficulties, etc., in Germany, Professor Markscheffel says on p. 14 of his pamphlet:

> Concerning the pedagogical value of international correspondence there can no longer be any doubt. Of course, this institution, like every other, has its faults and shortcomings. There has, therefore, been no lack of opponents to express their fears and anxieties concerning it. They say, *e. g.*: "Schools have no time for such things; teachers and students are sufficiently engaged, if not already overburdened." It is true, teachers of modern language have their full measure of work from the additional tasks of theme reading, correcting papers, etc., but the supervision of the correspondence of a few students is an easy task and offers interesting experiences to the active teacher, which he will scarcely shirk. As to the students—most have time enough for sports and pastimes ordinarily, so that a few hours can easily and willingly be set aside for this beneficial mental exercise. Experience has proved this. This is especially true since only those skilled in the foreign languages are to be admitted. To such the writing and reading of letters in foreign tongues will give no trouble.

The fact that a majority of the members of the Bavarian Neuphilologenverband voted against a resolution in favor of student correspondence, in Nuremberg, April, 1902, for fear of its overburdening the students, is not significant, for Bavaria is entirely without experience in the matter. In 1897, when the first experiments were made elsewhere, the Bavarian school commission prohibited the undertaking, at least for the boys' schools. In the countries where student correspondence has been tried practically, there no longer exists any anxiety on this score.

Strange to say, the greatest opposition comes from a fear that it will lead to unpleasant relations, to the practice of deceits on the part of students, which cannot be prohibited on account of the impossibility of sufficient supervision. This criticism was made most often during the early experimental stage of the undertaking. Today, when the correspondence is regulated by fixed rules; when only such pupils are admitted at the central office who deserve confidence as to their morals, and whose parents have given their consent; when, especially in girls' schools, only such letters are mailed that bear the stamp of the school, this criticism falls flat.

Dr. Hertel, in an article entitled "Herr Professor Dr. K. A.

Martin Hartmann und der internationale Schülerbriefwechsel," in *Pädagogische Studien*, Vol. XXII, No. 4, clings to his former view, that international student correspondence is an evil, because he had learned of instances where it led to cheating and to unpleasant relations. Professor Hartmann answers his charges in the same journal, Vol. XXIII, No. 1. Dr. Hertel had based his charges on the unfortunate experiences at Zwickau and applied them to the whole system generally. The trouble at Zwickau had arisen from leaving the whole matter in the hands of the students, when the thing had not yet been systematized.

Mr. Hengesbach, of Kiel, made similar attacks in the year 1898, early in the history of the undertaking. He spoke of the lack of system and supervision. As a result, he says, the teacher might become an object of criticism in the letters, and the pupils might prefer slang to literary expression. Mr. Konrad Meier, of Dresden, answered Hengesbach's criticisms in a clearly written article in *Neuphilologisches Centralblatt*, June, 1898, and shows quite conclusively that Hengesbach had been talking without knowing the facts, and making attacks because he refused to be interested.

Professor Markscheffel says another criticism is made, namely, that pupils will get outside help in their work, *e. g.*, from persons versed in the language that the students want to use. This is not a serious objection, for help of this sort can be obtained easily, and is obtained in the regular school branches. In most cases the teacher would be able to tell whether or not the writing was the student's own. Several years of experience show that even a loosely guarded correspondence is quite safe. When, on the other hand, the teacher notices the gradual improvement in the students, he has reason to rejoice. The statement that unscrupulous pupils speak unfavorably of their teachers need cause no alarm.

Occasionally parents have feared that their children might get partners below their social rank. In answer to this it may be said that, in the first place, an effort at equality of rank is made in the assignment, for the social standing of the parents is

considered in each case. Furthermore, what difference would it make, as long as the children were intellectually and morally equal? From the beginning the leaders of the movement have endeavored to remove any faults or shortcomings, and to assist wherever possible.

There are, however, real difficulties, such as the satisfactory pairing of correspondents. For example. a German boy of seventeen might want to correspond with a boy of the same age in California. Perhaps there is no California boy listed, or, if so, he may be twelve years of age, and therefore not a suitable candidate. Or a German girl might want to correspond with a French girl, and find she can get no partner because very few French girls choose to correspond in German; they prefer English. There has been another peculiar objection on the part of parents. English parents have been anxious for the welfare of their boys, and French parents for their girls.

A word concerning the treatment accorded to the correspondence plan in Germany. After the Congress of Secondary Education held in Paris in 1900, which, under the leadership of Professor Hartmann, gave great moral support to the movement, the subject was repeatedly discussed at educational meetings all over Europe. It was discussed at the meeting of the Association of the *Gymnasium* Teachers of Saxony at Plauen, April, 1901, and a month later at the meeting of the Association of the *Realgymnasium* Teachers of Saxony. Recently it was made the topic of a *Festrede* at the Realgymnasium of the Grand Duke at Weimar. From this address a considerable portion of the material for this paper was taken. On the whole, the movement is receiving cordial treatment at the hands of educators, and interest in it is spreading. What the future of the movement will be remains to be seen. If there is a sound idea at the bottom of it, it will thrive. According to the report from the German Central Station the total number of applications for correspondence from 1897 till the middle of 1902 was 10,600. The last three years show the following figures: 1,382, 2,187, 1,796. The last shows a decrease, but considering that almost the same number of schools applied as the year before (127 to 131), that of them,

67 per cent. had applied before, and that the rules have been made much stricter as to choice of students, there is really not much to fear.

In the year July 1, 1901, to July 1902, 1,783 addresses were distributed among Germans. Of these, 1,010 were French and 773 were English and American. Of the 127 German schools taking part, 34 were higher girls' schools, 26 *Realgymnasia*, 24 *Gymnasia*, 21 *Realschulen*, 14 *Oberrealschulen*, 3 teachers' seminaries, 12 trades' schools.

According to Professor Hartmann, the figures for the year 1902 were: German applications, 1,946—1,132 for French and 814 for English correspondents. There were distributed during the year, among Germans, 1,780 foreign addresses—950 French and 830 English. This is, indeed, a gain. Especially France and America have recently contributed well.

The number and kinds of schools in Germany that applied from 1897 to the middle of 1902, were as follows: 280 schools (196 boys' and 84 girls'), viz.: 90 *Gymnasia*, 56 *Realschulen*, 46 *Realgymnasia*, 14 *Oberrealschulen*, 5 teachers' seminaries, 5 trades' schools, 75 higher girls' schools, 9 seminaries for lady teachers.

In 1901 there were 145 schools, with 155 teachers, that applied at Leipzig. The division into states of these 145 schools is as follows: Prussia, 88; Saxony, 38; German Austria, 7; Mecklenburg, 3; Hamburg, 2; Bavaria, Würtemberg, Sachsen-Weimar, Reuss, Waldeck, Bremen, Lübeck, each 1. This shows that there is a greater distribution in north and middle Germany, where there are 136 schools. There are only 9 schools for south Germany and Austria. Therefore the requests from the French for correspondents in south Germany have usually not been fulfilled, and it shows that requests for certain kinds of correspondents cannot always be complied with.

Adults take part in the correspondence—students, teachers, merchants, etc. During the year 231 adults applied at the central office—125 for French and 106 for English correspondents.

INTERNATIONAL CORRESPONDENCE OF PUPILS.

ITS PRESENT STATUS IN FRANCE.

HANS GRONOW,
The Harvard School.

The progress of the international school correspondence in France has been slow, but continuous. About twelve years ago Professor Mieille started the movement by asking some English friends to correspond with his pupils. Mieille, being a teacher of English, felt that the reading and translating of English stories and classics into French, and still more the writing of compositions, was a very tiresome labor for his pupils. The results he obtained by correspondence were good, better even than he expected. He tried to have it introduced into other schools; he sought the support of the newspapers. Many of the latter adopted his suggestions and helped to exchange addresses among the pupils. Among the newspapers, with a large circulation, we may mention the *Concordia* in Paris, whose proprietor, Mr. Lombard, showed a deep interest in the progress of this new movement. Leading educators considered it of great value. Professor Gaston Mouchet, of Paris, was the first who, writing in a Boston magazine, *Education*, appealed for the suppor of America. Professor Schacht, of Switzerland, became the champion in his native country. Mr. Évrat, from the Lycée of Angoulème, during the session of the International Congress of Secondary Education held at the Sorbonne, made an earnest plea for the introduction of "school correspondence" into the curriculum. The *Revue universitaire* said: "The idea of Professor Mieille is a happy one; it is a practical one; it is highly approved in France by the higher administration." Everywhere the idea found a fertile soil and grew rapidly.

In the year 1900–1901 there were 1,078 French children who were corresponding with German pupils, and 125 adults. In 1901–1902 the number remained stationary, there being about 1,010 pupils. During the time from 1897 to 1901 the teachers of 217 schools had introduced this system to their pupils. These schools were divided as follows: 104 *collèges de garçons*, 71 *lycées de garçons*, 6 *écoles normales*, 3 *écoles de commerce*, 1 *école*

primaire supérieure, and 1 *école libre*, making a total of 186 boys' schools, against which there are only 31 girls' schools; that is, 16 *lycées de jeunes filles*, 7 *collèges de jeunes filles*, 5 *collèges normaux*, and 3 *collèges primaires supérieures*.

It was, indeed, very difficult to secure the support of any of the principals of the girls' schools in France for the international school correspondence. Most of the girls are educated in the Catholic convents, and I think we all know how difficult it is to introduce innovations into such schools. There are about 150,000 young girls in the convents, and only about 16,000 in the *lycées*, and the first named could not be considered at all until last year. Since the "Combes law," enacted in 1902, these convent schools are placed under state supervision, and no doubt we may look forward to a largely increased number of girl correspondents for the coming years. As is well known, the girls in France study very little German, except in the large cities and the eastern towns, and on that account the German central station found great difficulty in getting enough French girl correspondents. But it is a satisfaction to know that Professor Hartmann said in the spring of 1903: "The friends of the international school correspondence are informed that there is at present a large demand for this work from the foreign countries, especially from the *lycées* and *collèges* in France."

When an idea, conceived by one man, approved by others of the highest scholarship and the deepest interest in education, and supported by the leading papers, is debated, submitted to a vote, and unanimously accepted by leading educational institutions, we must consider such action as an indication of real value. During the meeting of the International Congress for the Instruction in Modern Languages, held July 25, 1902, the chairman put the following motion to a vote:

Resolved, That this meeting, being in possession of the results attained by the international school correspondence in France, England, Germany, America, and Italy, and having heard the favorable opinions of a great number of teachers who have tried it, hereby accepts the report of Mr. Mieille, and expresses the opinion that the correspondence between French and foreign schools be introduced into the classes of modern languages as a means of instruction, and that the teachers in those classes be encouraged to practice

it, in order that the writing of letters be given a place in the final examinations.

There was not a dissenting vote in the whole meeting.

During the session for secondary education on August 3, 1900, the following resolution was passed:

In Erwägung, dass der durch Privatinitiative ins Leben gerufene internationale Schülerbriefwechsel ein wichtiges Hilfsmittel nicht nur für das Erlernen fremder Sprachen, sondern auch für die allgemeine Geistesbildung und für die Beziehung der Völker untereinander darstellt, empfiehlt der Internationale Schulcongress allen Behörden angelegentlichst, diese Angelegenheit in jeder Weise zu fördern.

Even the order issued by the minister of instruction on May 31, 1902 (applying also to the convent schools, which are now under the supervision of the government), recommends that the international school correspondence be introduced into the courses of modern languages. We see in this the approval of the government, which considers it a valuable pedagogical means.

I feel inclined to think that Professor Schacht, of Switzerland, has given us the best testimonial in favor of the school correspondence. He says:

(1) The repeated reading of a letter in a foreign language must aid the pupil in his study and must increase his interest. (2) The reading and interpretation of a letter in a foreign language furnish the best opportunity for acquiring the *useful* knowledge of the language, and for becoming acquainted with the idioms of the language. (3) The use of those letters gives to the pupil the consciousness of his knowledge, and brings him into familiar contact with the most interesting topics of life. (4) The pupil tries to read the foreign script, which is always quite different from the letters taught in his own country. (5) This correspondence brings the people in closer touch and contributes to the growth of friendly feeling among nations. (6) It gives a deeper knowledge of the institutions and manners of a foreign people. (7) It brings to the pupil the opportunity of visiting a friend in a foreign country; it creates often practical and lasting relations.

Professor Mieille expressed himself regarding the international relations as follows:

Wir sind überzeugt, dass kein Mittel der Mitwirkung erfolgreicher ist, als das von mir vorgeschlagene: die Vereinigung der europäischen Jugend in der Brüderlichkeit durch Briefwechsel.

As the best proof that Mr. Mieille has spoken correctly, I take the liberty of reading the following letter. It is written by a French boy, eighteen years of age, to this German correspondent:

Ich fürchte, es besteht bei Euch ein gehässiges Vorurteil gegen die Franzosen. Bei uns, wiewohl der Schmerz jünger ist, besteht dieses Gefühl gegen die Deutschen sozusagen nicht. Viele erkennen, dass sie die Deutschen gern haben, und ich gehöre zu diesen. Und glauben Sie nicht auch, dass zwei Völker Nebenbuhler sein, ja selbst sich bekriegen können, und doch vermögen ihre gegenseitigen Charaktere zu lieben, sich einander zu schätzen? Das sind delikate Fragen. Seien Sie wenigstens überzeugt, dass ich ohne Hintergedanken zu Ihnen rede, wie zu einem wahren Freunde, dem ich mein innerstes Herz zu öffnen nicht scheue.

Is it not a pleasure to read such a letter? It is the result of a correspondence which started with the everyday phraseology of persons who are not acquainted, but who gradually became friends and now express their innermost thoughts. I am sure that in this direction it would be of great value for the American as well as the European pupil. How often we hear in our own classes the most absurd statements about European people and countries! And, pardon me, how much we had to change our conception of the American people and institutions since we set foot on this soil! The knowledge which we received in Europe concerning the American people was, to say the least, very limited.

I have here another letter, written by the son of a mayor living in a small town in a province:

Ich wurde sehr zufrieden, als ich Ihren freundlichen Brief ergehalten. Sie fragen mir Ihnen zu sagen, wie lange werde ich in dem Lyceume bleiben? Drei Jahre noch und dann will ich Militärarzt machen. Wie langweilig ist das Leben im Lyceum und wie angenehm ist das Leben im Familie. Ich bin traurig und weiss nicht warum? Mein Herz is liebevoll und ich habe Niemand zu lieben!

Take now such sentences as: "Ich wurde sehr zufrieden, als ich Ihren Brief ergehalten;" or, "Sie fragen mir Ihnen zu sagen;" or, "dann will ich Militärarzt machen." Write these on the blackboard, explain the mistakes, and their correction will make more impression upon the pupil than if he had made the same mistakes himself.

Another letter gives a description of Alençon and its famous castle; still another tells of the treasures in the Louvre and in the Luxembourg; some others, of the beauties of the Riviera. Does not all this interest a young mind? Will the pupil not ask questions, read books, collect more knowledge about such topics, just because they are brought before him in a personal manner?

I was in doubt whether a correspondence between young people who have never personally met each other could last any length of time, or whether the enormous distance separating us from Europe would lessen the interest in it. Before me lie the letters of a young lady from Valence, France, to an American girl. They commenced to exchange letters in 1899, and today they still keep up their correspondence. It is quite remarkable how many different topics have been discussed in these letters, and how much the style of them has improved. They sent to each other postal cards with views of the towns they were living in, of the places they were visiting during their vacations, amateur photographs, and, as they became friends, their own photographs.

May I add some personal experiences? Three of my own pupils traveled last year in Europe, especially in France and Switzerland. I urged them to write to some of their acquaintances in those countries. They did so; and when they receive a letter or send one, we all discuss it in the class with the greatest interest. I shall send Professor Hartmann the names of some of my pupils, and hope to get still better results.

To my mind the international school correspondence has been a valuable means for the study of modern languages in all the countries where it has been introduced, and when we think of the rapid growth it has made lately in France, we may feel assured that in the near future it will become a still greater factor in the study of modern languages in that country.

INTERNATIONAL CORRESPONDENCE OF PUPILS.

ITS PRESENT STATUS IN ENGLISH-SPEAKING COUNTRIES.

MARTIN H. HAERTEL,
Armour Institute of Technology.

There were exceptional difficulties to be overcome in establishing international pupils' correspondence in England, for there was no central educational organization to take up the movement. It was, first of all, necessary to interest the publisher of some journal, in order to give the movement publicity. In January, 1897, it was announced that Mr. W. T. Stead, editor of the *Review of Reviews*, London, had been favorably impressed with the idea, and was willing to accept, exchange, and publish names of prospective correspondents. The response was encouraging, one hundred names being immediately sent in with requests for French correspondents. The number of participants increased at a satisfactory rate, as is shown by the fact that in the first four years the London bureau placed into communication with foreigners 2,887 boys and 1,613 girls, a total of 4,500 pupils. In addition, many adults were registered. Since 1901 the rate of increase has been steady, but not very rapid. Exact figures cannot be obtained, but approximately they are as follows: February, 1901, to February, 1902, 2,400 correspondents; February, 1902, to February, 1903, 2,300 correspondents; of whom 2,000 were children, and 300 adults. The number of schools represented grew from six in February, 1897, to 130 in February, 1902. The greatest numbers were registered in the months of December, March, and June. The number of schools represented in 1903 is not accessible. Even far-away Australia has sent in names, although the exchange of letters between that country and Europe must of necessity be at long intervals, on account of the great distance.

Since 1901 England has provided comparatively few supporters of the system. Professor Karl Markscheffel, of the "Grossherzogliches Realgymnasium" in Weimar, in his pamphlet, *Der internationale Schülerbriefwechsel*, attributes this lack of interest to the depressing influence of the Boer war. If he is right, there should be at present an increase in the number of English

correspondents. Miss Lawrence, in *Comrades All*, regrets the apathy of the English teachers, and urges them to enter personally into correspondence with teachers in other countries. She writes:

> If we could induce teachers themselves to enter into correspondence with foreign teachers, their disinclination would soon disappear. For a teacher coming in contact with his fellows abroad, enthusiastic and practical as they generally are, could not but feel himself helped and sustained by the similarity of interests.[1]

M. Mieille also believes in the value of such relations. He writes to the *Practical Teacher:*

> No teacher will contradict me, I feel sure, when I say that, from the very nature of our duties, we incur the risk of narrowing our sympathies and even sensibilities to the small world wherein we move, sway, and command. International correspondence is a means—than which no better, no readier at hand, and no easier—of keeping in touch with the outside world; of procuring ourselves the indispensable *courant d'air* which is to sift our minds. It opens to the teacher a wide field of self-culture. He gains from it the gifts of wide sympathy and the larger insight into human nature that, as was said above, are essential to the right exercise of the teaching profession. It facilitates to him the comprehension of the foreign mind, the foreign literature and civilization. Last, not least, from those familiar talks with a fellow-teacher, from the exchange of books, of professional experiences, etc., that will result therefrom, the teacher will derive new modes of thought, will even perhaps evolve new methods, and in the end benefit himself as well as his pupils.

As England could not satisfy the demand for correspondents, French and German teachers turned to America. Gaston Mouchet published an article in *Education*, while a German, Professor P. Thiergen, contributed a similar article to the SCHOOL REVIEW (January, 1899). These articles aroused the interest of Americans, and in a short time numerous addresses had been sent to the central office in Leipzig.

Previous to this time individual teachers had introduced this system, first of whom was Mr. Thomas A. Jenkins, then professor of the Romance languages in Vanderbilt University, now in the same department in the University of Chicago. He was followed by Professor Edward H. Magill, of Swarthmore College, Swarth-

[1] *Comrades All*, No. 1, p. 10.

more, Pa. After the publication of M. Mouchet's article, the attention of the Modern Language Association was called to it, and a committee of four was appointed to make an investigation. In 1899 this committee made a satisfactory report, and five additional members were appointed. The central bureau was located at Swarthmore College.[1] In 1900 the committee again reported, and was continued without change.

In 1901 11 universities, 7 colleges, 4 high schools, and 31 private individuals, representing in all 590 correspondents, reported to Professor Magill. Of these 590 persons, 321 requested French correspondents, 257 German, 11 Italian, and 6 Spanish.

An encouraging feature of the system is the fact that a large number of persons wished to continue the correspondence after they left school. Miss Lawrence writes:

> Amongst the number of letters which were received directly after the first announcement in 1897, were many appeals from young clerks, ladies who had left school, but desired to continue their language studies, people who wanted to know something about their neighbors on the continent, and so on. Mr. Stead was, therefore, obliged to add an adult branch to the scheme.[2]

And a North American teacher writes, November 13, 1902:

> Seit ich vor nunmehr 3 Jahren mich zuerst an Sie wandte, hatten Sie die Güte, über 120 meiner Schüler mit Adressen zu versehen. Viele haben seitdem die Schule verlassen, doch nach genauer Nachforschung bin ich in der angenehmen Lage, Ihnen mitteilen zu können, dass die Mehrzahl meiner Abiturienten auch nach dem Verlassen der Schule ihre Korrespondenz fortsetzen. Zwischen manchen deutschen und amerikanischen Schülern haben sich die Beziehungen im Laufe der Zeit geradezu ideal gestaltet; aber auch die, die nur fünf oder mehr Briefe während des Jahres erhalten, bleiben nicht ohne wertvolle Anregungen.[3]

The need of a bond uniting the thousands of correspondents in the different countries was soon felt, and in 1901 the first issue of *Comrades All* appeared, published in London, largely at the expense of Mr. Stead. This first number is worthy of note. In a splendid introduction Mr. Stead gives his reasons for pro-

[1] Teachers wishing to register pupils should address Professor Magill.

[2] *Comrades All*, No. I. [3] *Ibid.*, No. III, p. 27.

moting international correspondence. As the editor of a great journal, which is read the world over, he is not primarily interested in the pedagogical value of the movement, but in the effect it will have on international relations, in removing narrow-minded racial prejudices, and creating a bond of sympathy between members of nations that once considered each other hereditary enemies. He writes:

> The doctrine that a good Briton should be taught from his infancy to fear God and hate a Frenchman like the very devil, which was laid down by Lord Nelson, would find little acceptance among those who have discovered how very much like themselves Frenchmen are. One great value of the interchange of letters is that you discover that the schoolboys and schoolgirls in every country are perplexed by the same difficulties and make the same mistakes; and a consciousness of similarity in blundering often tends more to sympathy than an ideal perfection which admits of no mistake. What I should like to set as an ideal before everyone who takes part in this international correspondence is that they should endeavor to find out on how many points they agree with each other, and on how many points they differ, with the object, not of quarreling upon the points of difference, but of finding points of agreement, and of understanding why they differ.[1]

Easter, 1903, the third number of *Comrades All* appeared. It has a department for each language, contains articles by the leaders of the movement in England, the United States, Germany, and France, a collection of the best letters that were written by members of the organization, and a list of prizes awarded for the most interesting letters.

Unfortunately, owing to lack of financial support, it will probably be impossible for Mr. Stead to continue the publication of this annual.

The objection has frequently been urged that this correspondence will consume too much time on the part of the students, and energy on the part of the teacher. Several who have tried it have denied this, but especially convincing is the statement by Mr. Jean Buhrer, as printed in the *Perthshire Constitutional and Journal*, May, 1902, in a report of the proceedings of the Scottish Modern Languages Association:

> Mr. Buhrer said, in connection with the Perth Academy, when he was first asked, in the spring of 1897, to join in the movement, he first hesitated,

[1] *Ibid.*, No. I, p. 3.

but after receiving the first report from Professor Hartmann, he brought the matter before his pupils in the advanced classes, and almost all the girls took it up. That was at the end of 1897. Ever since the girls in the highest classes were members of the international correspondence classes. During the last few months he had the pleasure of sending in twenty-one names of adult students who attended the evening continuation-classes. Altogether there had been sent in about ninety names and addresses since November, 1897. Of those who took up the correspondence from the beginning he was glad to say that he knew of only four who had dropped. The others were still keeping it up, and he thought were as much interested in it as ever. What were the aims of international correspondence? To promote education, instruction, and friendship; and the benefits derived from this system were numerous indeed. Comparatively few of the many lovers and students of modern languages were able to go to Germany or France, and the next best thing, he thought, to actual residence abroad was this correspondence. Here the correspondent had an opportunity of bringing his knowledge into practice, here he found a direct connection with one who spoke and wrote the language, and here he got a regular intercourse and discussion of things up to date. Facts about certain customs and manners which he never could understand from his book, and which seemed strange and incomprehensible, were explained, and he penetrated into the culture and the spirit of another people. If both partners were serious in their correspondence, they would vie with each other in bringing out the good points, not only of their school, but of their town and their country, and then the correspondence becomes not only a propaganda of their language, but also of their country. The correspondence helped to make the study of language in schools less dry and monotonous, and less of a drudgery. Pupils always looked forward to their next letter. They learned a good many words they never got from books nor heard in the class. If they intended going abroad, they would know to whom to apply, and would get information and help from their friend, while on arriving they would feel themselves less lonely, knowing they had at least one friend to turn to in any difficulties. Terrible evils and difficulties were at first prognosticated both on the side of parents and teachers. Teachers thought the pupils might bring the schools into bad repute, and that they might write things about the teachers that would do much harm. Parents objected for fear of contaminating their children. But all this proved a mistake. One of the rules was that the teacher ought to supervise the correspondence as far as possible. Indeed, the correspondence would prove a success only if the teachers took a lively, active interest in it. Proceeding, Mr. Buhrer said it was precisely because of the crowded condition of the class work that this system afforded a relief instead of giving an added burden to bear. No time whatever need be occupied with the correspondence in class hours, but the students should carry it on themselves. An occasional letter of special interest or amusing errors might be read in the class. The cor-

respondence, however, did not only go on during the school tenure, but during the holidays and after the pupils had left school, and led to friendships and business relations, and was a long source of pleasure and profit to all those who were thus engaged. He could say from personal experience that correspondence did not burden the teacher, but made his work much lighter and more interesting.

Mr. Magill, of Swarthmore College, Pennsylvania, who is now chairman of the American committee, writes:

Teachers often say that their hours for class instruction are so few and so crowded that they have not time to introduce this correspondence. It is precisely because of this crowded condition of the class work that this system affords a relief, instead of giving an added burden to bear. No time whatever need be occupied with the correspondence during the recitation hours, but the students of different nationalities being once introduced to each other, and started in the work, they carry it on themselves, without aid from their teachers, receiving all needed assistance from each other's criticisms and corrections. This is not mere theory, but practice, as I have observed it in my classes from year to year. An occasional letter of special interest or amusing errors, made in attempts at a foreign tongue, may occasionally be read in class, as a variation of the monotony of what is sometimes too dull and tedious; and this can be done without at all exposing the names of the writers of such letters, if so desired.

Professor Ernst Wolf, of the Saginaw (Mich.) High School, is quoted as writing:

Die dank dem internationalen Schülerbriefwechsel tatsächlich erzielten Erfolge haben mich, der ich anfangs der Sache sehr skeptisch gegenüberstand, zu einem begeisterten Anhänger der Einrichtung gemacht. Das Interesse wird durch sie in hohem Masse gestärkt. Die Deutschen und das Deutsch sind meinen Schülern dadurch unzweifelhaft menschlich, ja persönlich näher gerückt worden. Sie sind jetzt zur Überzeugung gekommen, dass die deutsche Sprache nicht bloss eine Schulsprache ist, die nur zum Lehren and Lernen taugt, sondern dass diese Sprache der ihnen gleichalterigen und geistesverwandten jungen Leute im fernen Deutschland zum Ausdruck von Gefühlen und Gedanken dient, die ihren eigenen merkwürdig ähnlich sind. Bislang liess sich das Verhältniss meiner Schüler zur deutschen Sprache prägnant charakterisieren durch das Zitat: "Doch eine Würde, eine Höhe entfernte die Vertraulichkeit." Das Bücherdeutsch muss ja naturgemäss eine derartige Wirkung haben. Es ist also das Persönliche, das in der Einrichtung liegt, was sie wertvoll macht. Und sagt nicht der grosse Pädagoge Goethe: "Persönliches muss herrschen!"

Other letters affirm the same:

THE GRAMMAR SCHOOL, PORTSMOUTH.

DEAR SIR: I send you another list of twenty-three boys who wish for French correspondents and two who desire to write to German boys. Not only do their letters arouse the interest of the boys in many things other than language, but it gives them something to talk about, and they seem quite willing to do so, with very little encouragement from the teacher. I am convinced that much good will result from this correspondence. Even if it only tended—as it assuredly does—to make a pupil look upon French as a "living language," in fact, a very lively one, it would induce me to give it my hearty approval and humble support.

G. S. CONRAD.[1]

Der Briefwechsel hat in der Schule das grösste Interesse für das Deutsche erweckt. Die Schüler erwarten mit der grössten Ungeduld die Antwort auf ihre Briefe. Seit meine Schüler den Briefwechsel angefangen, haben sich meine Klassen um 60% vergrössert, und dieses verdanke ich zum grossen Teile dem internationalen Schülerbriefwechsel.[2]

Mr. F. Baumann, of Torgau, makes a remark that might give food for thought. After referring to a Canadian student, who had neglected to answer a letter directed to him, and who refused to make any explanation of his lack of courtesy, although inquiries were made, he writes:

Die Briefe von Amerika liessen überhaupt viel zu wünschen übrig. Zwar sprachlich korrekt, waren sie doch dem Inhalt nach von sehr geringem Werte. Man musste sich wundern, dass Primaner so gutmütig waren, den Briefwechsel mit Leuten von der geistigen Bildung eines Tertianers eine Zeit lang fortzusetzen.

The other side of the question is presented when an American teacher writes:

Letztes Jahr sandte ich Ihnen auch einige Adressen, und Sie setzten diese in Verbindung mit deutschen jungen Leuten. Diese Korrespondenz war nicht sehr rege, und es scheint mir fast, dass es mehr die Schuld der deutschen Korrespondenten war, als die der hiesigen.

The letters written by the pupils are very interesting. The principal subjects discussed are, in the order of their popularity: the person of the writer—his occupation and special interests; the school—description of the buildings, grounds, and the daily routine of work; the home town; games; interesting localities near the home of the writer. Those written in the mother-tongue of the pupil are very good; the pupil feels that the

[1] *Ibid.*, p. 26. [2] *Ibid.*, No. III, p. 27.

honor of his school, and, to a certain extent, of his country, is at stake, and will do his best. The attempts at the foreign language would be considered good by anyone who has ever tried to teach German composition. Of course, there are many mistakes; but even the mistakes of a French or German child, when he attempts to write English, may be turned to good account. Thus, if a French boy writes "the beautifuls trees," and refers to the "house" as "she;" or if a German boy places an infinitive at the end of a sentence, and writes of an apple as "he," certain peculiarities of foreign idiom can be impressed on the class in such a manner as no grammar rule can ever accomplish.

As an illustration of how such a correspondence may begin, the following is quoted from a letter written by a Massachusetts boy. In his first letter, written in English, he tells that he is sixteen years old, and has had two years of German. Then he describes his home, and arranges for an exchange of postage stamps. In the second letter he makes a courageous attempt at German, which results as follows:

MEIN LIEBER FREUND.

Ich habe Ihren Brief empfangen und sollte er ehe geantwortet haben, aber da ich krank war, konnte ich nicht ehe schreiben. Ich danke Ihnen sehr für die Postmarken, und werde Ihnen später andere senden. Die Zeitung, die ich Ihnen auch sende, hälte ein Bild unseres Fussball Gesellschafts ein, das vielleicht Sie interessieren wird. Ihr Brief war so ganz richtig, dass ich er nicht zurücksenden werde. . . . . Nun werde ich etwas um meine Familie sagen. Mein Vater is ein Bauende von Häusern, und ist auch Präsident des Geheimen Rates der Stadt Waltham. Ich habe auch eine Mutter, und eine Geschwester, der dreizehn Jahre alt ist. . . . .

The rest of the letter is in English. Every experienced teacher can readily see how valuable a means of instruction this letter must have been when it was returned from Germany with the proper corrections at the hands of the foreign correspondent.

DEPARTMENTAL CONFERENCES.

THE ANCIENT CLASSICS.

SOME NOTES ON CLASSICAL TRAINING IN A GERMAN GYMNASIUM.

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The German *Gymnasium* is a nine-year school, in which a boy is received at the age of nine or ten, and given a continuous training until his eighteenth or nineteenth year. It corresponds, roughly speaking, to the last three grades of our grammar schools, the four years of our high school, and the freshman and sophomore years of our college. It receives boys either from the elementary classes of the *Töchterschule* (the popular form of school for girls, to the lower classes of which boys also are admitted), or from the *Volksschule* (the elementary common or public school), or from the *Vorbereitungsschule* (a preparatory school affording especial training in preparation for the *Gymnasium*); and it graduates its students into the university or some higher technical school. It will thus be seen that the *Gymnasium* is the very heart and life of the whole German educational system; and while in recent years it has been modified to meet the pressure of more modern thought and needs to the extent of the establishment of the *Realgymnasium*, the so-called *Reform-Gymnasium*, and even in a few cases the *Mädchengymnasium*, it still remains the great training school for boys, and maintains its time-honored methods and curriculum almost intact.

The nine classes of the *Gymnasium*, beginning at the lowest grade, are styled *Sexta*, *Quinta*, *Quarta*, *Unter*, and *Ober Tertia*, *Unter* and *Ober Secunda*, and *Unter* and *Ober Prima*, respectively. The course of study includes religion, that is, Bible and church history, with the catechism of the established church, German (rhetoric and composition, and literature), Latin, Greek, French,

history, geography, mathematics, natural science, writing, drawing, with English and Hebrew as electives in the last two years. To this are added singing during the first two years, and physical culture throughout the course.

Following is the plan of studies, showing the proportions of time allotted to these various studies:

	VI	V	IV	U-III	O-III	U-II	O-II	U-I	O-I	Total
Religion	3	2	2	2	2	2	2	2	2	19
German	4	3	3	2	2	3	3	3	3	26
Latin	8	8	8	8	8	7	7	7	7	68
Greek	..	..	..	6	6	6	6	6	6	36
French	..	..	4	2	2	3	3	3	3	20
History	..	..	2	2	2	2	3	3	3	17
Geography	2	2	2	1	1	1	..	..	..	9
Mathematics	4	4	4	3	3	4	4	4	4	34
Natural science	2	2	2	2	2	2	2	2	2	18
Writing	2	2	..	..	..	..	..	..	..	4
Drawing	..	2	2	2	2	..	..	..	..	8
Total	25	25	29	30	30	30	30	30	30	259

It will be seen by a glance at this curriculum that Latin is its most important element, if we are to judge by the amount of time allotted to that subject in comparison with the others. And such is the case. Latin is made the ground on which the hardest battles of a boy's education are fought out. Here he receives his severest mental drill and training. Incidentally, it may be remarked that Latin is considered in Germany distinctly a man's language. Except in the most up-to-date private schools, it is not taught to girls and women, who are supposed either to have no practical use for this study, or not to be equal to the mastering of its difficulties.

The Latin curriculum for the entire course is most carefully and in the minutest detail planned out by the governmental directors of education, and followed by the individual schools and instructors. This is true also, of course, in the case of all other studies in the *Gymnasium*.

Following is the detailed curriculum for the Latin course, arranged by years:

Sexta.—A study of the regular forms, with the exception of

deponent verbs. In connection with the reading and exercise book, a vocabulary of carefully selected words is gained in preparation for the later reading. The reading and exercise books therefore use the words employed by the prose writers who are read in the middle grades, and take their subjects mainly from the old tales in history; and a connection is thus early established with the writers to be read later, so far as language and subject-matter go. The text-books offer connected reading as well as isolated sentences, at first for translation from Latin into German, and then from German into Latin, essentially the same vocabulary being used in each.

This work is done in the class-room, under the direction and with the help of the teacher, and the pupils are then asked to repeat the work alone. As the work progresses, the independent work of the pupil is called for more and more. Constant practice in construing is given. The pupils are not overburdened at the start, or ever, with large amounts of technical syntax. At the beginning, the elementary rules of syntax are introduced and explained by examples as occasion requires; *e. g.*, expressions of place and time, the ablative of instrument, the most commonly used prepositions and conjunctions, and some simple rules about the Latin order of words. These are all developed out of the simple reading matter, and are practiced orally and in writing.

There is a weekly written class exercise of about half an hour's work in connection with the reading. This is handed in to the teacher for correction, and returned to the student for recopying if necessary.

Quinta.—The work of this year is a repetition of the regular forms mastered in the previous year, with the addition of deponent verbs, such of the irregular forms as are absolutely necessary, and the enlargement of vocabulary along the lines mentioned above.

A new reading and exercise book is introduced similar to that used in *Sexta*, but of a properly advanced grade. The same elementary grammar, however, is continued through both years.

At this stage considerably more connected reading is offered to the students than in the previous year. Constant practice in

construing is continued. Further advance in syntax is made, the rules being developed and illustrated from the exercises, which are constructed with especial reference to these. New points of syntax introduced here are the use of the accusative with the infinitive, the participial constructions, the ablative absolute, etc.; also the special constructions with names of towns, the double accusative, and the historical perfect.

The weekly written exercise of *Sexta* is continued in *Quinta*, to be prepared either in class-room or at home.

In these first two years of his work the boy has three text-books: an elementary grammar for the two years combined, and an exercise book for each year. These books contain just what is to be learned in the first two years, and nothing else; hence both teacher and pupil have a perfect understanding of the amount of work to be done.

The elementary grammar which I found in use in *Sexta* and *Quinta* in the *Gymnasium* which I visited is a small book of seventy pages in all, edited by Seyffert and Fries (1902). It contains the simpler facts about the five declensions of nouns, with paradigms of all the regular forms, rules for gender, etc. By way of helping the memory, rules for gender and other generalizations are put into verse form. For example, we find the following rule and exceptions for the masculine gender in the third declension:

I. HAUPTREGEL FÜR DIE MASCULINA.

Brauch' männlich ō, or, ōs, e-r
Und e-s Ungleichsilbiger.

One of the *Ausnahmen* or exceptions is:

Von Ungleichsilbigen auf e-s
Ist eins ein Neutrum, nämlich *aes*;
Als weiblich aber merke man
Sich *merces, seges, quies* an.

Next come adjectives with their declensions and comparisons, the different classes of numerals, and the various pronouns —all this in twenty-eight pages of large type. In the matter of declension it should be observed that the German student of

Latin has a great advantage over the English student, inasmuch as the former has a much more highly inflected language of his own than has the latter. For example, when the German boy learns his declension of *puer*, he has a varying form of his own language, especially in his article, if not in his noun, to fit the corresponding case variations of the Latin, and has to call in the help of a preposition only in the ablative case, thus:

N. *puer, der Knabe,* the boy (subject).
G. *pueri, des Knaben,* of the boy.
D. *puero, dem Knaben,* to the boy.
A. *puerum, den Knaben,* the boy (object).
V. *puer, O Knabe,* O boy.
Abl. *a puero, von dem Knaben,* from or by the boy.

The obvious value of this fact is that in the very act of learning the paradigms the boy learns, not only the form, but the syntax of each word, so that ordinary uses of all the cases become a grammatical commonplace from the very beginning.

In pp. 28–70, inclusive, we have the treatment of the verb; the verb paradigms in twenty-three pages, followed by a most excellent analysis by conjugations of the most important verbs according to their stem forms and principal compounds. Then four pages are devoted to the irregular verbs, *e. g., possum, fero, volo,* etc., and one page to the prepositions. Formal syntax is confined to the last two pages and a half, and treats only of the methods of expressing place where, whence, and whither, with names of towns, etc.; the accusative with the infinitive, the participial, and the ablative absolute constructions. Other common noun constructions are learned, as above stated, in connection with the declensions. The syntax of the verb is reserved for later study. The exercises for translations from Latin into German and from German into Latin in the exercise book for *Sexta* are most carefully graded, consisting at first of short unconnected sentences, which call into use the forms as they are met in the study of the grammar in their order, together with such simple constructions as subject and predicate nominative, possessive genitive, indirect and direct object. These paragraphs of isolated sentences are occasionally varied by paragraphs of con-

nected narrative containing only the forms already learned. A good illustration is the following paragraph upon the subject of "Deutschland" which we find as the fourteenth exercise in the beginner's work:

Germania est patria nostra. Silvae et fluvii patriam nostram ornant. Rhenus et Danuvius sunt fluvii magni et lati Germaniae. In ripis Rheni et Danuvii magna copia clarorum oppidorum est. Populi Germaniae semper bellicosi fuerunt. Scuta Germanorum antiquorum erant magna, hastae erant longae. Memoria bellorum et victoriarum semper est in animis nostris. Magna est gloria belli, magna gloria doctrinae; nam multi docti viri et egregii poetae in patria nostra fuerunt. Germani patriam praeclaram habent; pueris bonis et piis patria cara est.

Other similar paragraphs upon the subjects, "Griecher und Römer," "Das Leben der Landleute," "Die persischen Kriege;" later come short fables, simplified to fit the grade, and arranged to illustrate the forms which have already been studied. When the student has finished this first year's exercise book he has mastered a vocabulary of about 700 words, has had repeated exercises in the use of substantives and adjectives of all declensions, the forms and simple uses of verbs of all conjugations, the pronouns, prepositions, and conjunctions—no mean acquisition, if it is firmly fixed in the student's mind and ready to his hand.

Instead of going on now to read an author in the second year, the student is still kept upon the elementary grammar, and given a second exercise book in which advance is made to deponent verbs, additional irregular forms, and a greater variety constructions.

The student is not left to puzzle out the new principles by himself, but every advance is made in the class-room itself under the teacher's instruction and guidance. This second-year exercise book is provided with a full Latin-German and German-Latin vocabulary, together with a collection of common idiomatic phrases grouped by subjects—phrases which have already been met, and hence given special attention in the exercises. Thus we find forty phrases under *war*, sixteen under *civic life*, twelve under *private life*, besides numerous proverbs and maxims. The students' vocabulary gained in the first year is thus vastly enlarged by the end of the second.

Quarta.—With this definite and ample equipment the student enters *Quarta.* This is a notable time, for he is now given the large grammar which is to serve him for the remainder of his course in the *Gymnasium;* and he is introduced for the first time to a Latin author, namely Cornelius Nepos. The preparation still takes place in the class so far as is necessary, while the self-activity of the pupils is more and more called upon, and occasional exercises in unprepared reading are had. The inevitable exercise book accompanies this year also, but it now contains no Latin readings, but only exercises in the translation of German into Latin. These are based upon the readings in Nepos, and are arranged to give drill in syntax, in which the student now makes a more definite advance and more intensive study, especially of the case uses. If one looks through the exercise book of this year, he cannot but admire the systematic advance into this more difficult ground. The exercises are designed to illustrate in full detail the uses of the oblique cases almost entirely, although one chapter is given to *ut* and *ne* clauses. It is quite apparent that the main stress of this year is still upon Latin composition, since only twelve brief "Lives" of Nepos are read, filling less than one hundred small pages of text; while, on the other hand, seventy-seven large pages of German text are to be translated into Latin, exercises based upon the Latin of Nepos. While this is undoubtedly a hard and perhaps tedious course, one cannot help realizing what a splendid drill it is, and how well versed that student must be in forms and syntax who has faithfully written his way through such a book, under the rigid instruction and correction of an energetic teacher.

Unter Tertia.—It is not until the student has reached *Unter Tertia*, or the fourth year of his study of Latin, that he takes up Cæsar's *Gallic War.* He is still given class instruction in preparing the lesson, together with practice in construing. He translates prepared passages, with occasional practice in sight reading, and with drill in phrases and synonyms. Sometimes in the second half of this year Ovid is read. The syntax consists of a repetition of the study of the cases and the completion of the main rules about tenses and modes. Copious exercise in Latin

composition is had through the use of an exercise book based for the most part upon Cæsar for subject-matter and vocabulary, and giving exercises in the case uses and modes just mentioned. This exercise book for *Unter Tertia* contains an excellent *Anhang* or appendix, in which are found numerous Latin phrases grouped by subjects which the students are to commit to memory. Some of these subjects are *Res Militaris* (analyzed into numerous subdivisions), covering 104 phrases; *Vita Publica*, 70 phrases; *Vita Privata*, 33 phrases; etc.

Ober Tertia.—The reading of Cæsar's *Gallic War* is continued in this year, with the introduction of selections from the *Civil War* and from Ovid's *Metamorphoses*. The student now gets his first formal introduction to the reading of poetry as such. Explanation and drill in the use of the dactylic hexameter are given, together with the general study of the more important rules of prosody. Also selections from Ovid are committed to memory. The grammar study repeats the previous work, and completes the survey of the tenses and moods of the verb. The composition book this year is based upon the later books of the *Gallic War*, and drills in the principles of syntax just mentioned, as well as upon the principles of Latin style in prose composition. A digest of these principles is given in an appendix to this volume, which contains also an analyzed list of phrases similar to that found in the book for *Unter Tertia*.

Unter Secunda.—The reading of this year comprises the easier orations of Cicero, such as the orations against Catiline, *Pro Roscio*, and *De Imperio Pompei;* selections from Livy, especially the first and second books; Ovid, or Vergil's *Æneid;* occasional sight translations from Cæsar. In connection with this reading, passages are committed to memory from Ovid and Vergil, important phrases are learned, and rules for style, synonyms, etc., are developed out of the reading matter. Grammatical drill, reviewing the previous work, and learning the new principles developed by the more advanced and varied reading, is kept constantly to the front, both in connection with the readings and with the composition book, whose exercises are based upon these readings, especially Livy and Cicero.

Ober Secunda.—The readings for this year are selections from Livy's third decade, especially Books XXI and XXII; Cicero's orations *Pro Archia*, *Pro Ligario*, *Pro Rege Deiotaro*, *In Caecilium*, and his *Cato Maior;* selections from Sallust; selections from Vergil's *Æneid* such as form complete pictures in themselves. Connected with these readings is a gathering up and completion of phrases and synonyms previously learned, and a grammatical study of the more difficult principles of syntax and the peculiarities of style. It is these peculiarities of Latin style which the composition book for this year is especially designed to present and illustrate. I cannot too highly praise this book, both for its content and its method. It contains on pp. 85–109 what is called a "grammatico-stylistic appendix," in which are treated systematically the grammatical and stylistic peculiarities of the Latin language as differentiated from the German. The subject-matter is arranged in fifty sections and treated under the following heads: the substantive, the adjective, the pronoun, the verb, the adverb, and the negative. The rules are succinctly stated and adequately illustrated. To quote a single instance, we may take § 4 under the substantive:

> Latin verbal nouns in *-tor* are used only (*a*) when the noun is used to represent a person's activity as regular, professional. Thus: *Orator*, an orator by profession; *accusator*, *delator*, one who makes a regular business of bringing accusation. (*b*) Where a single act bestows upon a person lasting significance: *e. g.*, *Romulus*, *Romae conditor; Arminius*, *liberator Germaniae.* In all other cases a verbal periphrase should be chosen; *e. g.*, the enemy were the assailants, *hostes nos adorti sunt;* we shall be the victors, *nos vincemus.*

The first part of the volume consists of exercises designed to illustrate these stylistic rules, section by section, first in isolated sentences and then in connected paragraphs, illustrating the principles of the sections under discussion.

Unter and Ober Prima.—In these last two years of the course they read such orations of Cicero as *In Verrem*, IV or V, *Pro Plancio*, *Pro Sestio*, and *Pro Murena;* selections from Cicero's philosophical and rhetorical writings and from his letters; Tacitus' *Germania* and *Agricola*, or a part of the *Dialogus;* selections from the *Annals* (especially those parts which treat of Germany),

and from the *Histories;* also selections from Horace, some of whose most famous odes are committed to memory. There is occasional sight-reading, and the pupils are encouraged to private reading, especially of those authors whose works they have already read.

The exercise book used in *Ober Secunda* is continued in this grade also.

With such a training the German student enters the university, with a not very wide knowledge of the authors, to be sure, considering the length of the Latin course already passed, but with a facile knowledge of the language itself which enables him to proceed with ease along any of the higher lines of classical study which now open to him.

Special elements of note in the Gymnasia.—As I have studied the German *Gymnasia* from their published curricula and text-books, from conversations with their students and teachers, and especially from a careful observation of one of the most famous of the *Gymnasia, Latina,* one of the institutions of the *Franckeschen Stiftungen* at Halle a/S., I have tried to formulate the points of especial note which seem to me to have contributed to the success of the schools. Some of these points are as follows:

1. The *Gymnasium* is under state control, and must conform to an established high standard of excellence. This control is not in name or form only, but in fact. It extends to all schools, private as well as public. No irresponsible private school can exist in Germany. Every such school must have state sanction and must conform to state standards. I was amazed to find how completely under control, down to details of courses and text-books, were even the private schools. Of course, this state of things is not an unmixed blessing, but the advantages which it confers are obvious.

2. The *Gymnasium* offers nine years of continuous study under one system. Here again, while a certain amount of variety is lost, there is distinctly obviated the inevitable loss of momentum which comes from a too frequent change from school to school, system to system, atmosphere to atmosphere.

3. A high standard for the teaching force is maintained. The

teachers in the *Gymnasium* are all men who have passed through a high and rigid training in preparation for this work, and have afterward served an apprenticeship or probation period as well. They have chosen this particular grade of work as their life-work, and are not merely sojourning here until they can get university positions or go on to some other profession. The *Gymnasium* teacher has a well-recognized social position, and receives a fairly good emolument, as salaries go in Germany. He is also assured of a pension after a certain period of honorable service. Hence we find men of solid character, excellent education, literary ambition, filling these chairs as the sober and final business of their lives. Among all the elements which make for the success of the German *Gymnasia*, this of the highly trained and permanent teaching body must be acknowledged the most potent.

4. *The teachers teach.*—I have noted repeatedly in the outline of the course above that an important part of the daily class work is the instruction by the teacher in the preparation of the lesson. Seldom have I seen a finer piece of teaching than in one of the sections of *Sexta* in the school to which I have just referred. It was a class of forty boys of about ten years of age, as eager and intent upon the lesson as ever they were upon a game of ball. The teacher was very strict and exacting, but kindly as well, and the pleasantest relations seemed to exist between him and his class. It was not a case of one boy reciting, and the rest either studying ahead in preparation for their turn, or attending to private interests among themselves. All were in the lesson all the time. No statement but an exact statement, no expression but a correct expression, in form as well as content, was accepted. There was no giggling or self-consciousness, no laughing at errors. All were in serious and happy earnest. It was as far removed as possible from the hearing of a recitation. The teacher was teaching all the time, reviewing and drilling, reaching out into new work, explaining, developing. But when all is said, always the most notable thing about that recitation, and most of the other class exercises which I witnessed, was the eager attention of the class. Whence comes this? Perhaps it

comes from the German's national trait of taking himself and all that he undertakes very seriously. Certain it is that the German teacher and student alike take the work of the school with absolute seriousness. The boys are not coddled or coaxed into learning. It is taken as a matter of course that they are there to work, and work hard. That is their business in school. The habit of orderly hard work is inculcated from the first. The discipline is practically of a military character. It never seems to occur to a German boy that disobedience and disorder are possible. He stays put. From his cradle up he has learned that on every hand there are restrictions within which he must walk. This atmosphere was instinctively felt by my own little five-year-old when he asked one day: "Ist alles in Deutschland verboten?"

Again we are moved to ask: Is this state of things an unmixed blessing? Be this as it may, it certainly produces admirable results of orderly and serious work in the class-room.

5. The work is carefully graded and clean-cut. Two years ago there was read at this conference a most excellent and practical paper, the central thought and plea of which was that the student should know from day to day in the Latin class as well as in algebra and all else just what is expected of him. The outline of the Latin curriculum which I have given at length in the first part of my paper shows that the Germans appreciate this point and act upon the principle involved. The text-books are admirably graded; the assignment of work from year to year, and from day to day, is very definite, and both teacher and pupil well know just what is expected of them.

6. Home study, as distinguished from class-room study, is recognized and assigned. This is a definite assignment generally of a written piece of work. This is recognized, not only by the teacher in the school, but also by the parents in the home. I have seen German mothers day after day keeping their boys to their work in complete preparation for the morrow's lessons immediately upon their return from school, before they were allowed to think of play. Here again, however, we feel that this is an overworking of an otherwise excellent principle.

DEPARTMENTAL CONFERENCES.

HISTORY.

REFERENCE LIBRARIES FOR ANCIENT HISTORY IN THE HIGH SCHOOLS.

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Any scheme for anything, to be of practical value, must adapt itself to actual conditions. It may criticise those conditions, and suggest possible reforms or ameliorations. It can never ignore them, or place itself in direct conflict with them.

In discussing, then, the formation and use of a library for the study of ancient history in the high school, our first duty is to know the conditions under which the study is pursued, and the consequent limitations to which we must adapt our wishes and our hopes. And right here at the outset comes a difficulty which makes it almost impossible to offer any general working scheme at all. That difficulty is the great variety of circumstances under which the subject is studied in different secondary schools. This variety is recognized as a fact, not criticised as an evil. It does not militate against the formation of an ancient-history reference library in every one of a dozen widely differing schools, but it does prevent the formulation of a finished plan having a universal, or even a general, application. In some schools the subject is taken in the first year; in others, in the third and the fourth; in still others the membership is drawn from all the years. Some secondary schools have classes of a dozen members; others, classes of forty, or even fifty. Some schools draw their membership from families of culture, where the habit of reading is formed before the high school is reached; others must undertake the instruction of pupils who need to be taught very literally how to read at all the simplest page, with any true idea of its significance; and, in many, the foreign element is so large that the teaching of history becomes of necessity the teaching of English also.

It is of the utmost importance that these widely varying conditions be recognized, and that the fatal mistake be not made of recommending any one fixed list of books to be used in all secondary schools alike. And this point concerns more especially the classes in ancient history, since it is in these classes that the variety of conditions tells most heavily, for the reason that ancient history is almost invariably, and should be invariably, the first history studied. In the high schools of our own city every other history class is closed to first-year pupils, and this eliminates a considerable part, though by no means all, of the difficulty arising from the great variety of intelligences and abilities that must be taken into account in any plan that may be framed.

This variety of conditions is not a thing that can be ignored, but it can be met, and the way to meet it is to allow the largest local liberty, both in the selection and in the use of reference material. Let us have no one fixed list for a library in ancient history. If possible, let us have no list at all. Fortunately, there is relatively so little controversial material in this branch of historical study that such liberty might be conceded. If, in our larger cities, it would seem to be a license bordering on anarchy, the next best thing would be to have an accredited list of such length and range that any school might select from it the books adapted to its own needs. Full liberty, then, if we can get it; if not, the widest, biggest kind of comprehension, but never uniformity and conformity pure and simple. If that idea once gets control of the formation of historical reference libraries for the high school, their usefulness is death-doomed from the very start. This, then, is the first recommendation of your committee, that the selection of books for reference in ancient history be left to the individual schools that are to use them.

Let us suppose this vital preliminary satisfactorily adjusted. We will assume that we can secure the requisite flexibility in the selection and use of materials to meet the widely varying needs of our widely varying schools. We are then ready to consider the fundamental questions of the selection and use of library materials.

As the fact of the variety of conditions prevents the presen-

tation of any fixed list, it seems wiser to offer instead certain general principles of selection whose observance, in the opinion of the committee, will go far toward making the library a practical success. That every library is not such a success, the rows of unused volumes on many a dusty shelf testify only too eloquently. If we could but make available today the funds that are tied up in this unused, though often valuable, material, the important practical question of ways and means might be regarded as already settled. It is in the highest degree important that the mistakes of the past should not be repeated, but that every dollar should be so invested as to secure the largest and most lasting returns. With this object in view, the committee offers, as its first great fundamental principle, that the books for such a library be selected primarily with a view to the limitations which, whether we wish it or not, will certainly control their use, and only secondarily with reference to the scholarly standing and inherent merits of the books themselves.

The principal limitations which appear in every school, though they vary widely in degree, are intellectual immaturity, literary inexperience, lack of power to read rapidly and assimilate easily, crowded school courses, the demands of other studies, home duties often multiform and pressing, the distractions of social life, and the consequent lack of time, energy, taste, and interest. To these must be added the great scope of the subject, and the shortness of the time that can be spent on any one part of it. All these considerations taken together make impracticable any scheme that requires the reading of very long or very difficult references.

And besides these limitations in the pupils and in the subject, there is in all the larger schools another, working right along with them, intimately related to them, and in itself of the first order of importance. This is the number of pupils who must use the books, and the consequent imperative need of duplicates. This, if duly weighed and considered, especially if tested by daily experience, makes impracticable any scheme which would place upon the shelves a large collection of different references present only in single copies, or in but few duplicates.

It is certain that both these practical difficulties, the length of the references in proportion to the available time, and the difficulty of obtaining the needed book when there are but few duplicates, are felt even in the university where the students are no longer children, but young men and women, capable of far harder and longer tasks than can be assigned in the high school, and where the library is open and accessible all the time till a late hour in the evening. The case of the long references has been admirably stated by one young lady now studying history in the University of Chicago—a young lady of such intellectual power that what she cannot accomplish may safely be considered too heavy a task for the average student. "There are about seventy pages in the reference reading for our history tomorrow," she said, "and we all have other difficult lessons to prepare besides. What are we going to do about it? We are simply going to let it alone." A student from the normal school stated with equal force the parallel trouble about the reference books. "There is one book," she said, "that all of us must read right off, because it is necessary to an understanding of our subject. There are five hundred of us. There is one copy of the book."

Now, in the high school it is of the utmost importance to avoid such difficulties as these. There are obstacles enough already in the way of getting pupils to read. The books should be made obtainable with as little effort and as few disappointments as possible, and this can be done only when there are abundant duplicates. The same principle should control the length of the material assigned for reference. We should remember, in the ancient-history classes especially, that the pupils are immature, that they are often slow readers, that, in the broader sense, many of them are just learning to read, and that the course has to be covered in so short a time that it is practically impossible to send them to references of hundreds of pages, or even scores of pages, on the work of a few short days.

These considerations, we feel justified in concluding, shut out relentlessly from a necessarily limited list two great classes of works which, in themselves, stand at the very head of reference-book material, but which, for our special purpose, are less

suitable and less valuable than other works of very much lower grade. We mean, of course, the full translations of the great original Greek and Roman historians, of Herodotus and Thucydides and Xenophon, of Livy and Cæsar and Sallust and Tacitus; and we mean also the extensive works of the great modern historians, of Grote and Curtius and Holm, of Ihne and Gibbon and Merivale and Mommsen. There would be a place for these works in a high-school library, and several important occasional uses for them, if money were so plentiful that we could have all the other more practically available material that we need, and these books besides. Then, indeed, we would take them, and rejoice greatly to get them; but as it is, and as it is likely to be, it is better not to plan for their purchase. Their cost prevents the extensive duplication which is a first necessity in the larger schools, and their length hinders that daily use by all members of the class which it is of fundamental importance to secure. Yet your committee believes that there is much in these books, especially in the original authorities, that is perfectly suitable for our pupils, much that is more valuable to them than any other material, much that they cannot afford to do without. Fortunately, most fortunately, there is a practical way of securing all that is most appropriate and most available in this line, without purchasing the full translations themselves, without investing funds that are sure to be limited, in books that are sure to be but little used.

And this brings us to the kind of material we would use for a really practical and serviceable library. Of course, in venturing on any outline at all, we keep constantly in mind the variety of schools already recognized, and we know that there are some schools to which our plan would not apply. What we offer, we offer as one plan only—a plan which experience has shown is well adapted to a secondary school of the grade of the Englewood High School. For such a school, we would make the original sources, but the sources in a greatly simplified and abbreviated form, the very center of our library scheme. We would not get the full translations in duplicate, except in the one case of the *Iliad*. There should be *Iliads* enough to meet

the demand, and the demand is apt to be very great. Not less than a dozen *Iliads*—twenty would be better—should be the first books on our library shelves.

But after Homer, it would seem better for our high-school pupils to use such a set of books as the "Ancient Classics for English Readers." These little books reflect most beautifully, in miniature, the character of the great originals. They are inexpensive enough to be duplicated liberally. They are short enough to be used as actual working references for the daily lesson, and, in the Greek history, they cover the subject admirably. The student can find in the little Herodotus accounts that he can manage of Marathon and Salamis and Platæa. He can turn to the tiny Thucydides for the glorious oration of Pericles, and he will read with zest the short, vigorous chapters on the plague, on Cleon, and on the great disaster in Sicily. Later, the little Xenophon will tell him all that he will have time to hear about the Retreat of the Ten Thousand. The miniature Aristophanes will make him remember, as no text-book can, the law courts, the demagogues, and the philosophers. These chapters are so short that they can be read, so bright that they will be read. Especially noble and beautiful work can be done with the series on the dramatists, with the Æschylus and the Sophocles, and, in a lesser degree, with the Euripides. Add to these a little, a very little, from the Aristotle and the Plato and the Demosthenes, and we have done about all with Greek originals that our high-school limitations will permit. Indeed, there will probably be many schools which would find a short course like this too much, rather than too little, to carry through successfully. But the plan can be modified in almost countless ways. Your committee knows of no one set of books at once so valuable and so suitable for high-school work on Greek history, as this little set of the "Ancient Classics."

There ought to be some way equally practical of getting at especially valuable parts of some of the great modern histories without buying the entire work. These are not books that can be chewed and digested by our students; still less are they books that can be, or that should be, swallowed; but many of them

are emphatically books that ought to be tasted. We can do little with the four volumes of Mommsen's *Rome*. We could do much with duplicated extracts of such choice passages as the significance of the Gallic conquest, or the character and work of Julius Cæsar, and his place in history. In Dr. Arnold's *History of Rome*, the old legends are told with Livy-like simplicity and force. The Roman spirit is through and through them. In our study of early Rome we ought to have duplicates of these old tales as Arnold tells them. The college and the university may dispense with the legends; the high school never can, since its purpose is culture and the acquisition of general information, rather than technically correct training in any one subject; and, along this line, the pupil will need very frequently to know about the old stories rejected long ago by critical history. Then, too, we must have these stories to bring out the Roman spirit, to create for our pupils the atmosphere in which, for a time, they are to live and move.

Many more illustrations might be given of the great practical use of portions of books whose contents as a whole cannot be made available. Some way ought to be evolved of getting these portions in duplicate without violating copyright. Possibly publishers might consent to some such plan; might even be glad to do the work for us themselves, if a sufficient sale could be guaranteed. Or the schools might duplicate, for their own use, such extracts as were especially desirable. This idea has been carried out in one or two things in a small way at Englewood. It has been extremely hard to get hold of anything good on the geography of Italy. We have copied a large part of chap. I in Duruy's *History of Rome*, and had it duplicated by volunteer work of the pupils, in some cases on the typewriter. We have twenty-one copies. When classes are studying this subject, these copies are in use from morning till night, and the supply falls far short of the demand. Work of the same kind could be done with profit on the early chapters of Coulanges's *Ancient City*, and with selected and condensed parts of Freeman's *History of Federal Government*. Both of these books furnish material that is needed, and that is hard to find; but to

buy them both, in the necessary duplicates, for the limited use to which we could put them, would be beyond our means. If some way could be found of getting in duplicate just the selections we need, the great modern histories would be adapted to our use as the great ancient ones are already by the series of "Ancient Classics."

Another class of books needed in plenty of duplicates is the latest and the best text-books, besides the one in the hands of the pupils. The student ought to have the best short account there is on every part of the subject, and no one text is best on every topic. Then, too, the different views are stimulating, the change from one to the other agreeable, the contradictions suggestive, the general result broadening. Above all, by their use the pupil grows to feel more and more that he is studying a subject, and not a book, and that he is to look for continuity in the development of his topic, rather than in any succession of pages whatever.

Another valuable class of works is the short book on the special period, such a book as Bosworth Smith's *Rome and Carthage*, or as some of the essays in Creasy's *Fifteen Decisive Battles*. The *Rome and Carthage* can be read in connection with the daily lessons almost in its entirety; and it is in handling books of this manageable length that pupils form a taste for reading larger histories. A caution should be observed here, however Not many of the books in the "Epochs of History" series are as well suited to our work as the *Rome and Carthage*. It would be a mistake to purchase the series as a whole. Nor does time permit the use of many of these books in full, in connection with the text-book.

One of the most expensive, but, at the same time, one of the most important and useful, as well as one of the most charming, kinds of reference material is to be found in illustrated books which show by pictures, and describe in an interesting way, the houses and the dress, the industries and the amusements, the cities and the villas, the modes of travel and the daily food, of the people of long ago. Falke's *Greece and Rome* is such a book, invaluable in such a library as we propose, but it should be there in duplicate. Six duplicates would do fairly well for Englewood.

The school now owns but three. The book should be separated into its two parts, and each part should be bound by itself so as to make it easier to handle, and also to make the work available at once to double the number of students—an important point when the midyear classes are considered. On the oriental nations, especially, illustrations can be made of the greatest practical value, a means of source-teaching in a very simple and unpretentious way. The student can learn the occupations of the ancient Egyptians from pictures copied from the tombs as quickly as he can learn them from the text, and he enjoys it more and remembers it longer. Indeed the value of illustrations is so great, in the elementary teaching of history, that the right collection of illustrated books, and probably also of sets of pictures for reference use, would be one of the very best forms of investment for the library funds that we haven't got, and that we are not likely to get.

One book ought to be made for the express use of the high-school library, and it ought to be liberally duplicated; and that is, a volume of selected readings, in the main poetical, that bear upon the work and vitalize it with the poet's life and fire. Such extracts as parts of Shelley's "Hymn to Mercury," Keats's glorious verses to Bacchus in "Endymion," Æschylus's description of the attack and the war cry of the Greeks at Salamis, Browning's "Pheidippides," and his introduction to "Balaustion's Adventure," the chapters in Hamerling's *Aspasia* describing the Panathenæa and the statue of Olympian Zeus—all these are read with the greatest delight. Such a book need not be very large. It would be exceedingly valuable, and would be in constant demand.

It is impossible here to examine our subject more fully. The plan that has been outlined is based on individual experience only, and such experience is sure to be narrow; but your committee has endeavored to guard against this narrowness by urging local liberty, which means flexibility, and the possibility of breadth and growth. In brief summary, the essence of our recommendations is in these three things: liberty, suitability, practical convenience; liberty in providing for full local control

over the selection and the use of books; suitability in adapting the books to the pupils as they are; practical convenience in providing abundant duplicates, and in remaining content with a shorter list of titles in order that we may do so, since a few books used by many is more in harmony with the principles of the public school than many used by a few.

As to the use of such a library there is comparatively little to say, since all the details would depend on local circumstances and on the individual teacher. Yet even here there are a few general principles which may be regarded as fairly well established. These principles are as follows:

1. *The use of the books should be constant and should be general.* All the pupils should consult some of the books every, or almost every, day. All, or most, of the recitations should draw upon the library for materials. The library would thus become as vital a part of the work in history as the laboratory is of the work in science.

2. *The young student should be taught and encouraged to use the books by very definite references.* The power to look up a topic without the guidance of direct reference is an acquired power. We may well believe that it will need a little training by the simpler method before it can be gained.

3. *The use of the library should be enjoyable.* As a rule having extremely few exceptions, in this early part of the course, the material assigned should be interesting and attractive. The power to use the dull book for the sake of the intrinsic value of its contents is also an acquired power, and it is not safe to assume its existence in the first year of historical study. Reading references should bring an immediate return in joy, as well as in knowledge, so that the pupils will love to go to the books. The reference library must be made popular, if it is to be made a power.

4. *The references should not be so long as to make an excessive, or even a proportionally unfair, demand upon the pupil's time.* He is studying other things besides history, and the history teacher, of all teachers, should be the very first to recognize the value of other subjects than his own.

If these principles are recognized in practice, and we can get,

first the books, and then a constant and general use of the books, guided by direct reference, kept within proper limits of time and strength, and made thoroughly enjoyable, then the value of the reference library as an aid in the teaching of ancient history can hardly be overestimated. It is the very greatest help a teacher can have, to have his pupils, during their hours of preparation, working on material of such power and charm that it gets them, instead of their having to get it. In ancient history it is possible to find this material in forms admirably adapted to immature pupils, and in almost unbroken sequence from the first to the last day of the course.

Possibly a word is needed about an occasional use of the library which is more advanced and more highly individualized than any we have yet considered. The little theme, worked up in the right way from different books, under the sympathetic guidance of an inspiring teacher, is, perhaps, the most valuable exercise in the world. It develops, though in an exceedingly elementary way, of course, the habit of research in the collection of materials, historical insight in interpreting them, constructive power in putting them together, and artistic taste and skill in presenting them acceptably. Work of this kind *can* be done, given the right teacher, the right pupil, the right library equipment, and the right amount of time and energy to devote to the task. Nor is there any doubt that the university would rejoice greatly to find the pupils sent up from the secondary schools already trained to do such work as this. Moreover, ancient history is literally full to overflowing with topics admirably adapted to initial efforts along this line. But, unfortunately, the ancient-history classes are also full to overflowing with pupils who need more elementary training, and the teacher's time is also full to overflowing with less dignified and ambitious duties. Hence, in the great, crowded city high schools at least, this more advanced work for the individual pupil must remain, for the present, a fair but distant ideal. Not so the daily work with the library in the class-room. That is a thing we can get, and it is a thing well worth having. It is the acre in Middlesex, even if it is not the principality in Utopia.

DEPARTMENTAL CONFERENCES.

MATHEMATICS.

THE TEACHING OF ELEMENTARY ALGEBRA FROM THE STANDPOINT OF THE TEACHER OF PHYSICS.

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From the standpoint of the teacher of physics, I recognize that the teaching of algebra has three distinct aims: (1) to give the power to formulate algebraic expressions from stated conditions, and to solve those expressions; this is comparable with composition in language study; (2) to give the power to manipulate given expressions, "to juggle equations," comparable with translation in the study of language; (3) to arouse interest, and to promote mental training.

Strange as it may seem, the second point is the one of most immediate interest to physicists, and is the respect in which pupils who come up for physics are most deficient. However, in order to prepare the pupil for work in manipulation, it is quite essential that the other points have most of the attention at the beginning of the course. I will suggest that the course in algebra follow this order of procedure: (1) "analytic problems," to arouse interest and teach the main points about the more fundamental operations; (2) drill on the operations; (3) special "analytic problems" to bring out the value of the operations.

I will take up these three points in detail.

The character of the preliminary problems should be such that the data involved will come easily within reach of the previous experience of the pupil, from things he has observed or can easily imagine, or from work he has done in nature's laboratory, *i. e.*, his work and play outside of school. For convenience I will call these problems *static problems*—problems of condition, content, or possession. The chief value of these problems as introductory to the study is due to the very property that

Mr. C. E. Comstock finds objectionable, namely, that they give no information outside of the algebra involved, that they teach nothing but the forming and solving of equations. It seems to to me that this is an especial advantage in that the attention of the pupil is not distracted from the algebraic side of the problem while his acquaintance with algebra is as yet very slight. Such problems are those that deal with ages, money, crops in the field, capital, profit and loss, partnerships, legacies, numbers, earnings, expenditures, and savings. Referring to Beman and Smith's algebra for illustrations, you will find such problems on pp. 164 to 167. But these are all problems that involve nothing but number, those on p. 166 not being essentially different from those on p. 165. As such, they have a temporary value as introductory problems, but after the operations are somewhat mastered, this style of problems should be left out. However, each time a new part of the subject is taken up it may well be introduced by a few of this class of problems.

The serious part of the work should be done with what I will call *kinetic problems*. These may be taken up simultaneously with the more elaborate drill on the operations, and the work once started may consist of these two things. Both are of extreme value to the physics teacher; the first, in that in solving problems of this kind the pupil unconsciously and easily acquires the foundation for the more important simple concepts of physics, and will not be handicapped by a feeling of strangeness with the vocabulary when he takes up formal physics; the second, in that much of the difficulty of physics gathers around the manipulating and interpretating of algebraic forms.

I will divide "kinetic problems" into two classes: (1) *mensuration problems* and (2) *motion problems*. Arithmetic should have furnished the data for the first kind; those for the second come readily within the scope of a wide-awake imagination, aided by the observations of real life which a normal mind is sure to make.

1. *Mensuration problems* are illustrated on pp. 172, 173, 279, 280, 300–302, and 325 of Beman and Smith's book—problems on the relative dimensions of squares, rectangles, triangles,

circles, spheres, cylinders, disks, and on the arrangement of objects in such figures, on architecture, dress-making, heights of kites, trees, etc., characteristics of clock dial, etc., etc. Any of these can be so worded and complicated as to lead to either simple equations on the one hand, or to simultaneous quadratics as the other extreme.

2. *Motion problems* are illustrated on pp. 168, 170, 171, 190, 191, 281, 282, 329, etc. They involve the questions of time, speed, and distance in walking, wheeling, by train, by boat, swimming with or against a current, rate of working, pipes filling cisterns, velocity of sound, seeing and hearing a whistle, seeing lightning and hearing the thunder, falling bodies, pendulums, gravitation, rotating circles and distances covered (p. 301, No. 18), pumping- and hoisting-engines (p. 168, Nos. 39, 40), mixtures of different liquids, alloys, bodies revolving in circles (p. 190, No. 8; 281, Nos. 30, 35), etc., etc. Independent of the importance of these problems to the teacher of physics, they are of great value to the pupil in that they train the imagination and the faculty of thinking concretely as no other class of problems can.

As already mentioned, the power to manipulate algebraic expressions in all possible ways is indispensable to the physicist. None of the forms that occur in physics are especially complicated, not nearly as complicated as some of the abstract practice problems set in the algebras, and yet when the pupil comes to physics, he cannot solve sometimes the very simplest expressions, especially if the quantity desired is concealed in the second member of an equation, under a sign of division, or under a radical. Instead of giving the pupil equations to solve such as those on pp. 157 to 159 of Beman and Smith, why not give him the formulæ of physics without any explanation of their meaning, and require them to be solved in all possible ways? If desired, then the expressions like those on pp. 158, 159 might be added for further drill. In any case, there should be drill on the formulæ that the pupil is going to use later in physics.

In all cases, sooner or later substitute numerical values and have the expressions solved, even if the meaning of the numerical values or of the answer is left entirely unexplained. One

should be able (1) to solve for any term in terms of all the rest; (2) to solve for any term when two sets of data are given in which all but one of the other terms are constant; (3) the same when all but the constant are given; (4) the same when one or more terms are constant; (5) to translate the expression into the form of a simple variation by treating all of the terms except two as constant. This "juggling" should not be entirely abstract, yet in general detailed explanations of the phenomena involved will be unnecessary. The matter may be treated as Beman and Smith do in p. 281, No. 33; p. 282, No. 36; pp. 319, 320; p. 191, No. 17; p. 171, Nos. 54, 57, 58. Their method of attack is very suggestive. It will be found that algebra pupils can in this way solve questions easily that physics pupils without this training would find difficult, perhaps because the pupil in physics has two things to puzzle him at one and the same time, namely, the physics concept and the algebraic process. If he is properly drilled in the latter at the proper time—*i. e.*, while studying algebra—then his difficulties as a pupil of physics will be remarkably less.

Nine of the standard forms of physics formulæ are here given with some of their more complicated relations. The aim should be to be able to solve any form for any letter, and to be able to translate each into all the possible kinds of simple variations:

1. Uniform motion: $s = vt$; $F = MA$; $W = FS$; $E = CR$.
2. Falling bodies: $s = \frac{1}{2}at^2$; $E = \frac{1}{2}mv^2$; $s = v_0 t + \frac{1}{2}gt^2$.
3. Falling bodies: $v = \sqrt{2gs}$; $v^2 = v_0^2 + 2gs$.
4. Curvelinear motion: $F = \frac{wv^2}{gr}$; $E = \frac{wv^2}{2g}$.
5. Gravitation: $F = K\frac{m\,m'}{d^2}$.
6. Pendulum: $t = \pi\sqrt{\frac{l}{g}}$; $v = \sqrt{\frac{e}{d}}$; $n = k\frac{s}{l}\sqrt{\frac{t}{d}}$;
$$n = k\frac{t}{l^2}\sqrt{\frac{e(1+\alpha t)}{d(1-\beta t)}}.$$
7. Boyle's law: $V'P' = V''P''$; $PV = R\theta$; $V_1(B + H_1 - h_1) = V_2(B + H_2 - h_2)$.

8. Resistance: $R = \frac{rr'}{r + r'}$; $R = \frac{r_1 r_2 r_3}{r_1 r_2 + r_1 r_3 + r_2 r_3}$.

9. Lenses: $\frac{1}{f} = \frac{1}{p} + \frac{1}{q}$; $(\mu - 1)\left(\frac{1}{r} - \frac{1}{r'}\right) = \frac{1}{q} - \frac{1}{p}$.

Many problems in physics involve the ready use of a quadratic, perhaps in combination with a single equation; in such a problem, for instance, as finding the depth of a well by dropping a stone in it and counting the seconds until you hear the sound of the stone striking the bottom. This involves a comparatively easy elimination between a simple equation and a quadratic, and yet pupils in physics always stumble at this point. One has to stop physics and teach them algebra for two or three days before they can walk uprightly again. I would suggest that the solution of quadratics by completing the square be taught most thoroughly, and to the exclusion of all other methods until the pupil finds it so easy that he will not try to use other methods except for purely algebraic purposes. The method to which I emphatically object is that "*by formula*" given on p. 255. It is a good enough method to use while the pupil is studying algebra, but always proves his undoing if he tries to remember it afterward; much more so if he attempts to apply it to physics problems.

As already hinted, the subject of variation is the one of greatest importance to the physicist. The pupil should be able to translate given equations into statements of variations, and then to use these statements in solving problems. At first, in taking up variation, the simplest form should be gone over many times with various sets of data before any other forms are attempted. I would not introduce the graph until I took up the subject of variation, and then I would bring it in and use it for all it is worth. But more about the graph later. The variations that the physicist will need are the following:

1. *Variation direct.*—This can be illustrated by those "motion problems" that have to do with uniform velocity, either in a straight path or in a circle. It can also be illustrated by problems on the relative dimensions of similar figures, both plane and solid, such as determining the height of a tree by measuring its shadow and comparing with the shadow of a stick of known

length. This can sometimes be made a very valuable experiment, to be performed, of course, by the teacher. No doubt, many of the pupils will try it for themselves at home, if their interest is once aroused.

2. *Variation direct as the square.*—This can be illustrated by problems on similar surfaces and their dimensions; also problems, and perhaps just enough experimenting to make the data a little understood, on falling bodies. After all, the only thing that really needs demonstrating, and even that not always, is that the falling body keeps going faster and faster. This can be illustrated by noting the rebound when balls are dropped from different heights, or the splash when balls are dropped into water from different heights, or the relative depth to which falling balls will indent clay or putty when the height of fall is varied. The results of each of these experiments can be so explained as to make it clear to the pupil what is meant by saying that the velocity varies directly as the time, and from that he can be led to the conception that the space covered varies directly as the square of the time, if desired, in a purely abstract way, or rather by a pure algebraic proof by making use of the idea of average velocity. Still, problems can be worked with benefit without any of this experimenting or explanation.

3. *Variation direct as the square root.*—This can be illustrated by problems about surfaces and dimensions, also by problems on the pendulum. In the latter case it may be well to hang up four balls by threads of lengths 10, 40, 90, and 160 cm., and call the attention of the pupils in a semi-quantitative way to the very apparent fact that the periods vary directly as the square roots of the lengths.

4. *Variation direct as the cube* can be illustrated by problems involving volume and dimensions.

5. *Variation inverse as the first power* may be illustrated by problems on Boyle's law and on vibrating strings with no experiments, and by problems on the lever and on the balance with perhaps a simple experimental explanation. Experiments with the lever and the balance can also be used in getting data for problems on direct variation. One might proceed in this way:

Have a meter stick balanced on a triangular prism; hang a weight from a fixed point on one side; restore the balance by placing a weight on the other side in the proper place. Now ask where a different weight must be placed to give equilibrium; also what fixed weight must be placed at a given mark for the same result. Also ask how the weight on one side of the fulcrum must be moved to preserve the balance, if the weight on the other side is changed in value, though kept in a fixed position. This last problem will illustrate direct variation; the others, inverse variation. In each case follow the calculation with an experimental verification, if necessary, at least until the data are well understood. From the data construct a graph — from the experimental data, I mean, not from the calculated data. Never make a graph from calculations, unless you have time to throw away. In general, never use a graph except in connection with experimental data or tables of observations; also never perform an experiment that is more than a qualitative demonstration, without putting the data into the graphic form. It will be readily seen that the graph *suggested* by the experimental data will agree with the calculations of what the data should be theoretically.

6. *Inversely as the square* may be illustrated by problems on gravitation, on the intensity of sound, and on the intensity of illumination as depending on the distance. The variation of illumination may be illustrated by drawing the lines that bound the shadow of a body lighted up by a point source of light and comparing the cross-sectional areas of the shadow at different distances from the source. Or an experiment may be performed, roughly of course, proceeding on the same general plan; *i. e.*, a square of cardboard will cast a shadow four times as big as itself on a screen twice as far from a small light as the card is.

7. *Inversely as the square root* may be illustrated from the equations of physics, used with but little explanation and no experimentation.

It will be noted that in connection with the more important of these variations I have suggested illustrations that depend on both kinds of "kinetic" problems, *i. e.*, mensuration and motion

problems. In the absence of experimental skill or conveniences, attention might be confined to the mensuration methods of illustration.

I come now to what is apparently troubling the consciences of many teachers of mathematics at present, namely, the use of the graph in elementary instruction. Most people think they must use it because authority has said so, or otherwise they will be considered as in the rear of the procession. One teacher said the graph was an interesting side excursion for its own sake, but asked of what use it really was to the algebra-teaching as a whole (elementary algebra, of course). She struck the proper idea, or toward it. The graph should be taken up for its own sake, or not at all. The graph is one language, the equation is another. The graph throws light on the equation in somewhat the same way that Latin throws light on English. To be sure, you cannot master one language unless you study the related languages. And yet the many tongues must not be taken up too soon, for fear of spoiling the vernacular, or confusing the pupil. So with the graph, there is a suitable time to bring it into the course. It should not be thought of as an illustration of the equation, still less as a means of rendering visible "the condition for real, imaginary, or equal roots," etc. The graph does not interpret the equation, as used by the physicist and the engineer; *it leads to the equation.*

The physicist uses the graph for four objects: (1) to point to the law; (2) to take the place of impossible equations, *i. e.*, to express laws that would require equations of unmanageable complexity, or laws that could be expressed by no known equations; (3) to facilitate interpolation; (4) to show errors of observation. Now, if you are going to use the graph in elementary work, sooner or later utilize it a little in each of these ways. It is not as difficult as it appears. There are only two sources for graph data that I would recommend at present—data from temperature observations and from lever experiments, Data from the latter source can be made to illustrate objects (1), (3), and (4); while data from the first source can illustrate the second object to perfection. Temperature data will perhaps be the most

readily available. However, data will probably have to be assumed (by the teacher, without stating that it is assumed), in order to make temperature data illustrate all the points. Write columns of data that show the temperature as increasing two degrees every ten minutes, decreasing two degrees every ten minutes, and remaining constant for a given period. Have the corresponding curves plotted and the equations written, and then call for the interpretation of the parts of a curve of actual observations. (By the way, I like the word "curve" much better than the word "graph." The latter seems to suggest the combination "graph-fad;" and, besides, the word "graph" does not at all mean what it is being used to mean.)

In conclusion, let me briefly recapitulate my points:

1. Select problems that will use the vocabulary and the phenomena of physics.

2. Select expressions for drill that will be used later in physics, and do not be afraid of "juggling with equations."

3. Do not think that "laboratory mathematics" means experimentation with apparatus in class exclusively. Depend on the laboratory work the pupil does outside of school in his work and play.

4. Do not worry about the graph, but bring it in when you are ready for it and can use it for its own sake.